A Historical Dictionary of INDIAN FOOD

K. T. Achaya

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IT

An unusual diversity of food materials has been produced in India for centuries. It was in India that the Aryan cultural ethos flowered, bringing to every area of human activity, including food and dietetics, a spiritual and moral dimension. On India converged waves of culturally diverse immigrants—Persian, Muslim and European colonial. All these elements melded on the receptive Indian soil, and further enlivened by distinctive regional nuances, created a cuisine that is among the greatest in the world.

This dictionary contains a wealth of information on the food materials, food ethos, cuisine and recipes of India. It draws upon literature, archaeology, historical writing, botany and genetics to situate Indian foods in time and place. The country's oldest literatures, Sanskrit, Pali, Tamil and Kannada, have been drawn upon extensively, as have the often illuminating accounts of visitors to India. Fascinating details covered here include the migration of food plants — such as the potato, tomato, papaya and chilli — from the New World to India through Portuguese and Spanish agency and their rapid integration into Indian cuisine.

With an extensive cross-referencing system that guides readers along the food-routes of India, this is an indispensable handbook for all interested in cooking, eating or researching Indian food.

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PREFACE

Several readers of my earlier book, *Indian Food: A Historical Companion*, published by Oxford University Press in 1994, felt there was need for a historical dictionary that would bring together, in alphabetical order, material scattered all over the earlier volume, besides of course relevant new material. Some cut-off point was necessary, and 1947, the year of Indian Independence, seemed appropriate. In the event, this is only relevant to a few entries, such as wheat milling or sugarcane products, where certain production figures for 1947 were in order. Of course the general thrust of the volume is the progression, over some four thousand years, of food materials themselves, and their conversion to edible products, in the Indian sub-continent.

The choice of entries was not confined to food *per se*, nor could it be when the basis of Indian dietetics is a holistic one that even embraces a cosmic moral cycle. Ayurveda is the science of life as a whole, and its precepts have for millennia governed, to greater or lesser degrees, the choice and style of food in India. Accordingly, ayurvedic parameters of taste (rasa), aftertaste (vipāka), potency (vīrya) and guna or property (hot-cold, heavy-light, oily-dry and so on), have been noted in the entries for several common food materials, and in turn their effect on the humoural balance (dōsha) of the body. Hindsight has generally been avoided; thus the āmla or Indian gooseberry is now known to have an exceptional content of vitamin C, but traditional medicine had its own reasons for the value of āmla in several restorative blends.

Being a historical dictionary, the country's oldest literatures, which are Sanskrit, Pali, Tamil and Kannada, have naturally been drawn upon extensively, as have the often illuminating accounts of visitors to India, starting with the Greeks in the fourth century BC. Entries which enumerate these sources, with historical dates, therefore seemed warranted. Another fascinating area, especially in the realm of food, is the transfer of words across languages, from the aboriginal Munda tongues into Sanskrit, from Tamil and Malayalam (often by way of Portuguese or Spanish) into English, and in reverse from these languages into Indian tongues.

Archaeological, literary, historical, botanic and genetic evidence have all been drawn upon to situate Indian foods in time and place. Of particular interest is the recent migration, following Columbus and Vasco da Gama, of food plants from the New World to India through Portuguese and Spanish agency. So quickly did these become integrated that today the potato, tomato,

papaya and above all the chilli are all but indispensable to Indian cuisine. Brief notes on the origins and transfer of these food materials are included in this dictionary. Despite extensive cross-referencing in the text, some repetition could not be avoided if each entry was to be reasonably complete; thus the entry on meat dishes would include preparations from Kashmir, Hyderabad and Kodagu, which would also figure in entries devoted to these cuisines.

In a book dealing with Indian food, it would have been pedantic and tiresome to italicize Indian words, like dhāl or rōti or ghee. In writing Indian words in English, except for indicating lengthened vowels, diacritical marks have been avoided. Phonetic forms of spelling close to the original sound have been sought, like palāo, chana (for the Bengal gram), chhāna (for precipitated milk solids), and *Sushrutha Samhitā* (for the medical text). References are listed together at the end of the text, followed by their own author index, and three other textual indexes; of Authors, Literary Works, and Historical Persons; of Latin Names; and of Indian Words.

In the rush into modernization, many traditional food preparations will be lost irretrievably unless documented by those in a position to do so. Women would be at a particular advantage in such efforts.

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K. T. ACHAYA

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A

āchār Word for pickle in Urdu and Hindi, commonly thought to have a Persian or Arabic origin,[1a] but stated by Rumphius in AD 1750[2a] to derive from terms like axi or achi used for the chilli (*see also* pickles, chilli).

adai Shallow-fried circlet of the Tamil country. The thick ground batter consists of almost equal parts of rice and as many as four pulses. It is described in the Tamil Sangam literature between the third and sixth centuries AD as a snack served by vendors on the seashore.[3,4,5]

adhrak Hindi for green ginger, from the Sanskrit ardraka, which in the *Atharvaveda* is adara.[6a] Dried ginger has its own Sanskrit name, srngavera or injivera, of Tamil origin: ver is root, and inji is a word still used in south India. The Hindi term is sunthi. Though the ginger is almost certainly native to south-east Asia, long cultivation has obscured the sites of original domestication. Several species are grown in Malaysia, and wild forms are still found in India[7a] (*see also* ginger).

agriculture in India Even the Indus Valley civilization of 2500–1500 BC shows evidence of advanced agriculture.[8Aa,9,10] At Kalibangan in Rajasthan, on the sand-dunes of the river Ghaggar, believed to be the ancient river Saraswathi, was excavated a field that had been ploughed about 2800 BC and then abandoned, for some reason now unknown. The north-south furrows were spaced widely apart, and those running east-west more closely. Even today in Rajasthan, horsegram is grown on similar wide furrows so as not to cast shadows on the shorter mustard plants grown at right angles to them. Beautiful toy clay models of wooden ploughs have been found. Annual flood inundation along natural channels, a feature in the area, probably served for irrigation, and bullocks for ploughing were readily available. It is surmised that the pottery jars with deep grooves in the middle, which have been found in large numbers in Mohenjodaro, were tied to wheels for raising water from rivers.

The Aryan civilization that followed from about 1500 BC set the patterns of agriculture that are still largely followed,[11a,12,13,14a,14b,15a,38] such as ploughing using two oxen and a light wooden plough, raising water from rivers and deflecting them into man-made channels for irrigation, transplanting rice, weeding, reaping and threshing. The common fertilizer was cowdung, and later also oilcakes. Silaging of fodder crops, termed sujavas in the *Rigveda*,[14d] was known. Pest control included the use of mantras, charms and amulets. By AD 500 elaborate seed dressings had developed.

Land fallowing, seasonal sowing and crop rotation were all practised from very early times.[14c] Three clear crop seasons (q.v.), and the produce to be grown in each, are firmly set out in the *Arthashāstra* (*c.* 300 BC).[16a]

agriculture in India

Grain was threshed on the ground in the field itself or near the village, winnowed, sun-dried and measured by volume.[14a] Grain was stored for year-long family use in clay pots (later called kothis), in woven rope containers plastered with mud, or in underground pits.

Supplementary foods were raised on the outskirts of villages.[17Aa] Pumpkins and gourds were grown on river banks, while lands that were frequently flooded were rated best for long pepper, grapes and sugarcane. Vegetables and root crops thrived in the vicinity of wells, and leafy crops on low grounds like the moist bed of lakes. Marginal furrows between rows of other crop plants were recommended for fragrant herbs and other medicinal plants.

Foreign visitors refer admiringly to Indian agriculture. Nearchos of Crete, who accompanied Alexander to India in 325 BC, noted that crops were grown both in summer and winter, and attributed this 'great facility of the soil' not only to the rains, but to the silt which the rivers brought down in great quantities from the mountains.[18a] Megasthenes, the Greek ambassador a few years later at the court of Chandragupta Maurya in Pataliputra, remarked that agriculturists constituted the bulk of the population;[18b] they 'were exempted from military service, and pursue their labours free from all alarm. Indeed it often happens that at the same time, and in the same part of the country, the army is engaged in fighting the enemy, while the husbandsmen are sowing and ploughing in the utmost security. The entire land is the property of the king, to whom they pay one-fourth of the produce as revenue.' Xuan Zang, the Chinese pilgrim who travelled all over the 118 kingdoms of India between AD 629 and 645, describes the raising of food in his time:[19a]

> In cultivating the land, those whose duty it is, sow and reap, plough and weed, and plant according to the season; and after their labour they rest a while. Among the products of the ground, rice and corn (barley?) are the most plentiful. With respect to edible herbs and plants, we may name ginger and mustard, melons and pumpkins, the heunlo plant (?) and others. Onions and garlic are little known, and few people eat them; if anyone uses them for food, they are expelled beyond the walls of the town. The most usual food is milk, butter, cream, soft sugar, sugarcandy; the oil of the mustard seed, and all sorts of cakes made of grain are used as food. Fish, mutton, gazelle and deer they eat mostly fresh, sometimes salted; they are forbidden to eat the flesh of the ox, ass, elephant, horse, pig, dog, fox, wolf, lion, monkey and all the hairy kind. Those who eat them are universally reprobated; they live outside the walls, and are seldom seen among men. With respect to the various sorts of wines and liquors, there are various sorts. The juice of the grape and sugarcane are used by the Kshatriyas as drink; the Vaisyas use strong fermented drinks; the Sramans and Brahmans drink a sort of syrup made from the grape or sugarcane, but not of the nature of fermented wine.[19a]

Later visitors like Ibn Haukal (AD 950),[8Ba] Al-Idrisi (AD 1080),[8Bb] Ma Huan (*c.* AD1460),[8Bc] Domingo Paes (*c.* AD 1520)[21] and Francois Bernier (AD 1659–66)[8Bd] all wrote extensively of the fertility of the

Indian soil and the variety and abundance of produce in various parts of India like Sindh, Bengal, Vijayanagar and Kashmir.

āhāra Sanskrit term meaning food and nourishment. Thus phalāhār would signify the use of only edible fruits and vegetables,[22,23] which is one variety of fasting in the science of dietetics, itself called āhāratattva.[24] Under āhārayōgi, the food permitted to ascetics, Charaka lists the oils of sesame, mustard and the like.[25]

ahimsā Concept of non-injury to life, enjoined by the Buddha in the Mahayana *Sūtras*, in particular the *Lankāvatāra*.[25A] Emperor Ashoka, a devout Buddhist, emphasized ahimsā in his edicts, and Mahatma Gandhi adopted it in modern times as a means of passive, non-violent political protest (*see also* meat consumption; vegetarianism).

ajamēdha The Vedic goat sacrifice enshrined in the *Sūtras* in which a male goat is seized, his feet carefully washed, the joints neatly cut up, and cooked using cauldrons and utensils made to rigid specifications.[66] The sacrificed animal was simultaneously bidden to go to the third heaven, where the righteous dwell, and the sacrificial meat was considered sanctified for consumption.

almond In Hindi bādām, from the Sanskrit vātāma (the sweet variety) and vatavairi (the bitter variety), both derived from the old Persian term vadam, and first used by Charaka and Sushrutha.[26Aa] The almond, *Prunus amygdalus*, is of Central European/West Asian origin, along with other related *Prunus* species like the cherry, plum, peach and apricot. In fact in Mughal times, almond trees were used to graft apricots.[27] Though fairly plentiful by the time of Akbar,[28] they were always expensive. Ralph Fitch notes in 1583 that in Cooch-Bihar almonds were used as small money.[29a] They find extensive use in Indian epicurean cuisine, ground with honey or sugar and fashioned into confections (bādām burfi, bādām-ki-jāli); beaten, after grinding, into sweetened milk (bādām kheer); as a flavourant for tea, or a stuffing in samōsas, for dressing pulāos and halvās, and the like.

alms as food Begging for food from citizens residing in the area was considered part of the discipline of humility expected of older students living as apprentices with their teachers.[13b] Of Buddhist student-monks (bhikshus), Xuan Zang[19a] wrote that 'though their family be in affluent circumstances, such men make up their mind (after their studies) to be like vagrants and get their food by begging as they go about. With them there is honour in knowing truth and there is no disgrace in being destitute'. A begging bowl (pātra) and a water-strainer (parishrāvana) were among the eight prescribed personal items. Anything given as alms by the householder, even if this was meat or fish, was expected to be eaten; it was the responsibility of the giver to ensure that the food was 'blameless' in that

the killing had not been seen, heard or suspected by the begging bhikshu.

amaranths A genus of very ancient South American origin, of which three species have become fairly widespread in India. *Amaranthus hybridus* subsp. *hybridus*, called rāmadhāna, chua, bathua and pungikeerai, is the commonest, with an impressive yellow or purple inflorescence.[2b,31a] The grains are dehusked by popping on hot sand, and the kernels ground into flour or fashioned with jaggery into a chikki. *A. hybridus* subsp. *cruentus* has green or purple leaves, which are eaten as chaulai, mēthi-bhāji or pungikeerai, while the grain is called rājgeera.[2b] The third is *A. caudatus*, a wholly ornamental plant with heart-shaped, showy, red-veined leaves, commonly called love-lies-bleeding.[2c]

Certain other amaranth pot herbs have either Indian or New World progenitors.[31a] *A. spinosus* has green or purple leaves, eaten as kantha-chaulai or mullukeerai. *A. tricolor*, with leaves of many hues, is called araikeerai or tandukeerai. *A. viridis* (kuppukeerai, sinnakeerai) has both edible leaves and an edible tuber which resembles asparagus.

āmla The Indian gooseberry, *Emblica officinalis*, is an ancient fruit now recognized as one of the richest natural sources of vitamin C. Carbonized remains have been excavated at Navdatoli (1600 BC),[32a] but it is first mentioned only about 500 years later in the *Jaiminiya Upanishad Brāhmanā*.[6b] The āmla was used to make a refreshing beverage (generically termed panaka), or pickled in oil, or preserved as a murabba (q.v.) in sugar syrup. It was one of the items recommended by Sushrutha for universal everyday consumption that transcended restrictions of body type and season.[33a] The āmla was one of three myrobalans, the others being the chebulic myrobalan and the belleric myrobalan, *Terminalia chebula* and *T. bellirica*, which in equal proportions make up the important medicine triphala, recommended for debility. It is also the base of other restoratives like chyāvanaprās.[34]

amphorae Two-handled roman wine jars found in large numbers at an excavated warehouse in Arikamedu, near Pondicherry. Marks of schools of Roman potters like VIBII, CAMURI and ITTA are clear evidence of trade between Rome and south India in the first and second centuries AD.[35]

aniseed Saunf, *Pimpinella anisum* is native to the Mediterranean region, but is now cultivated in northern and eastern India, perhaps since Muslim times.[2e] The slender green aromatic seeds are often served after a meal as a mouth-freshener and digestive, and are a component of pānchphōron (q.v.), the five-spice mixture of Bengal. The French traveller Francois Bernier (*c.* AD 1665) mentions carrying sweet biscuits flavoured

with aniseed during his travels in India.[29b]

annaprasanna Ceremony at which a child about six months old is first given solid food on an auspicious day. This food took the form of a paramānna (q.v.) of boiled rice, milk, sugar and honey, a little of which was gently placed in the child's mouth.[36] In early Vedic times some flesh was also included, and the *Grhya Sūtras* were of the opinion that the kind of meat given would influence the child's nature. Ram's meat would confer physical strength, partridge meat saintliness, fish a gentle disposition, and rice and ghee glory.[13c,37]

antelope Antelopes are shown in Stone Age paintings at Bhimbetka; their bones show up in excavations; and in Sanskrit there are a number of terms for them (krishnasār, harini, etc.). Antelope meat is listed among others in the *Vishnu Purāna* (third to fourth century AD) as very meritorious for use in the ancestral shrāddha ceremony.[38b] Emperor Jahangir found the milk of the female antelope 'palatable' and remarks that it was said to be 'of great use in asthma'.[8Be] Thomas Coryat (1612–17), an early English visitor, saw antelopes for the first time in the Mughal court, and notes that 'Robert Sherley and his lady' took back to England with them two elephants and eight antelopes.[7b] Later British colonialists considered antelope meat dry and lean, needing constant basting during roasting.[33b]

āppam A circular pancake of a toddy-fermented batter of rice, baked on a well-seasoned clay dish to yield a product with a thick spongy centre and lacy browned edges. It is a breakfast food in Tamil Nadu, served with sweetened milk or coconut milk, and in Kerala is eaten by Syrian Christians with a meat stew accompaniment, and by Nairs and Nampoothiris with aviyal (q.v.). Tamil Sangam literature of about the fifth century AD describes it as being eaten with a milk accompaniment,[39a] and as an item served by kaazhiyar and kuuviyar, vendors of snack foods, on the sea-shore.[3,4,5] The name āppam may derive from the Vedic fried dainty, the apūpa.[39b] The British corruption of āppam, hoppers, is widely used in Sri Lanka.[1b]

There are many variations of the āppam in Kerala. Heating on a stone or metal plate held over boiling water yields kal-āppam. Yele (or leaf)- āppam describes a mix of rice batter, grated coconut, jackfruit pulp and jaggery steamed in a banana leaf packet. Kuzhal-āppam is a crisp, tube-like fried product, and nai-āppam (the athirasam of Tamil Nadu) is a dark, chewy, deep-fried doughnut fashioned from a toddy-fermented rice and jaggery mixture. A crisp rose-cookie is the acch-āppam, in which a metal frame (accha) is dipped in batter and then immersed in hot oil, which fries the cookie and frees it from the frame.

Another food mentioned in Sangam literature is the idi-āppam (called nu-puttu in Kodagu, and

string hoppers in Sri Lanka) which is a pat of noodles shaped from a mash of boiled rice. It is eaten in Kerala and Tamil Nadu with sweetened coconut milk or milk, and in Kodagu with a meat or chicken curry.

apple The apple originated in the mountainous belt running across Asia Minor through Himalayan India and perhaps into China.[7c] As recently as in 1908 Sir Francis Younghusband described wild apple trees laden with fruit in Kashmir, and wild apple forms like the patol (*Malus baccata*) are still used as a vegetable in the north-western Himalayas.[2c] Amri and tarehli (*M. pumila*) are believed to be indigenous Kashmir varieties. Charaka mentions the sinchitika-phala, which could have been an apple of Chinese origin, and also the pāravata, which as pālevat still grows in Assam.[6i] In about AD 1100 Dalhana describes 'a bēr as big as a fist and very sweet' grown in the northern regions of Kashmir, which does suggest an apple.[6f] Amir Khusrau mentions apples in India in about AD 1300. They were given attention by the Mughals in their efforts to grow temperate fruits of high quality in suitable locations in India.

apricot *Prunus armeniaca* has been allotted Chinese ancestry but a wild form called zardālu still grows in India.[7d] Though Xuan Zang records in about AD 650 that apricots brought from Kashmir were 'grown on every side',[40a] a thousand years later Jahangir states that 'the sweet cherry, pear and apricot, so far imported' were being raised in Kashmir.[41] Grafting of the apricot was carried out on almond trees, which are of the same genus.[27] Like many sweet fruits, dried apricots are classed as 'cold' foods in ayurvedic terms, and have an alkaline reaction in the body.

apūpa A Vedic fried sweet item of barley or rice flour sweetened with honey,[6j] and later with sugarcane juice and sugar.[6k] The apūpa was an item permitted for use at annual ancestral shrāddha ceremonies.[41a] Made in Buddhist times with broken rice, it was termed kanapūvam. Later fig-like shapes,[6b] and stuffing with fried wheat flour[6k] are described, though the sweet connotation survives throughout. A Sanskrit variation of the name is pupa, which is reflected in the pua and mālpua of modern Bengal. Even the term āppam (q.v.) in south India could derive from apūpa.[39b]

areca nut The nut of *Areca catechu,* a tall slender palm, is always associated in India with the betel leaf (*Piper betle*), a climbing vine, which are chewed together at the end of a meal as a stimulant, digestive and mouth-freshener. Both plants are of southeast Asian origin. They may have entered India as a pair, and can conveniently be considered together.

The areca nut has been found in 10,000–7000 BC layers in the so-called Spirit Cave in Thailand. The centre of origin of the areca may have been central Malaysia, where other *Areca* species grow, and there is historical evidence of long use.[7c,42] A

Vietnamese book, *The Life Story of Tan and Lang*, dated before 2000 BC, is said to mention the practice of betel leaf chewing.[43,44] It is likely that the betel leaf was introduced into south India to begin with.

Though the nut is called arec in the Talinga dialect of the Sunda Islands, the word areca that is now used in English, is believed to be a Portuguese adaptation of the Malayalam word adakka, itself formed by combining adai (a close cluster) with kāi (fruit or nut).[1c] Tamil has another word, pūga, for the areca nut; Hindi has supāri, and scented areca grits are sometimes chewed by themselves without the leaf.

The term betel for the leaf is again a Portuguese derivation from the Malayalam/Tamil vetrilai or vettilē, meaning truly-a-leaf. The Hindi term paan for the quid is also derived from a word for leaf, the Sanskrit pārna. A common colloquial term for the quid in south India is paak, a word which Garcia da Orta notes as early as in AD 1560.[45a] The Sankrit words thāmbūla for the leaf (and later for the quid itself) and guvāka for the nut, and indeed the 'vetr' stem of the Tamil word vetrilai, are believed to be structurally related to such words as blu, balu and mlu that were used for the betel leaf in the Munda dialects of some aboriginal Indian peoples, and later absorbed into early Tamil and Sanskrit usage.[46] Another Sanskrit term for the quid, vīda, is the beeda of common current usage.

Northern literature mentions these items as late as in *c.* 400 BC, both in the Buddhist *Jātaka* tales in Pali, and in the Sanskrit *Dharmasūtras*.[6i] Kalidasa in his *Raghuvamsa* and Shudraka in his *Mrcchakatika* recognize the practice of chewing the quid as a custom of south India. References in the famous Mandasor inscription (*c.* AD 473) of the silk-weaver's guild in Indore, in Varāhamihira's *Brhat Samhitā* of *c.* AD 530, and in the ancient medical texts, all serve to indicate that it had by then become common practice everywhere.[43] In the Tamil classic *Sīlappadikāram*, the heroine Kannagi offers her husband Kovalan betel leaves and areca nuts to chew at the end of his last meal with her, before he departs for Madurai on his fatal mission of selling her anklet.[47]

There can be other components in the quid. The use of a dab of slaked lime (chunām) on the leaves, which releases the alkaloid and is responsible for the red colour that develops on chewing, is probably very old, since skulls dated 3000 BC with characteristic red-stained teeth have been found in the Philippines.[7e] Another frequent practice in India is to smear the leaves with kattha, the astringent, chocolate-brown, thickened extract of the heartwood of *Areca catechu*, a habit noted by Charaka, Sushrutha and Vaghbhata. The use of camphor by grandees in Kerala is mentioned by Garcia da Orta (*c.* AD 1560),[45] and in a Kannada work of AD 1594.[67b] The addition of aphrodisiacs yields a quid with the appelation palangtod (bed-break-

ing)! The *Mānasollāsa* (AD 1130) written by King Someshwara of Kalyana in Central India describes pancha-sugandha as a thāmbūla with five aromatic ingredients, namely the cardamom, clove, nutmeg, mace and camphor,[49] a truly kingly concoction.

Apart from its significance in stimulating saliva and gastric flow after a meal, paan is also regarded as an auspicious symbol of hospitality, and was offered as a moral and even legal commitment when an agreement was drawn up.[50] The goddess Lakshmi was believed to reside in the fore part of the betel leaf, Jyestha at the back, the lord of speech on the right, Parvati on the left, Vishnu inside, the Moon outside, Shiva in all the edges and Manmatha (Cupid) everywhere; Yama, the lord of death, resided in the stalk, which is therefore always pinched away and discarded before the leaf is used.[51] The *Shivatattvaratnākara* written in *c.* AD 1700 by Basavaraja, king of the Keladi kingdom, which stretched from Goa to Kannoor, carefully noted the locations of the best betel leaves and the best areca nuts in his domain.[51] Such information for the same period is also available for the Maharashtra area.[52] The quid kulapavīda was made up of 10–12 leaves, and must have been very large; in addition to the usual filling of betel nuts, slaked lime and kattha, it also carried cardamom, nutmeg, almond, pista and coconut shreds.[52]

Muslims, when they came to India, quickly took to chewing paan. In about AD 1350 Ibn Battuta describes how it was served in the Delhi Sultanate at the end of elaborate palace meals.[53] At pavilions set up in Delhi by Muhammad bin Tughlak, any citizen, whether a native or a stranger, could help himself without cost to sherbet, betel leaves and areca nuts.[54] Visiting the court of Vijayanagar in AD 1443, Abdul Rezzak of Herat, the ambassador from Samarkand to the court of the zamorin of Calicut, attributed the virility of the king to his habit of chewing the betel leaf: '. . . it deserves its reputation . . . it lightens up the countenance and excites an intoxication like that caused by wine. It relieves hunger, stimulates the organs of digestion, disinfects the breath, and strengthens the teeth. It is impossible to describe, and delicacy forbids me to expatiate on, its invigorating and aphrodisiac qualities.'[8Bf] European visitors all refer to the ubiquitous chewing habit, and Niccolao Manucci in 1654 described his first experience as a young man of chewing the betel quid: '. . . my head swam to such an extent that I feared I was dying. It caused me to fall down; I lost my colour, and endured agonies; but (an English acquaintance) poured into my mouth a little salt and brought me to my senses. It happens with the eaters of betel, as to those accustomed to tobacco, that they are unable to refrain from taking it many times a day.'[55]

arhar *Cajanus cajan*, the pigeon pea,

called thuvar in south India, arhar in the north, ādhakī in early Buddhist literature (*c.* 400 BC) and thuvarika by Charaka. The progenitor is some species of *Atylosia;* even today wild forms grow in the Western Ghats of south India, which cross easily with thuvar.[32b] Arhar is a tall shrub bearing yellow flowers streaked with purple and long maroon pods with four or five seeds. The southern thuvar is a short plant with exclusively yellow flowers and short green pods carrying three seeds. Thuvar is the common edible dhāl of south India, used in making rasam and sāmbhār (*see also* thuvar).

arishta Generic term for medicated alcoholic concoctions, the name itself meaning absence of injury in Sanskrit (*see also* beverages, alcoholic).

aroids Edible tubers of three families distributed all over the southern hemisphere.[7f] The *Alocasia* family originated in India/Sri Lanka, and includes two species. *A. indica* is the giant taro (Sanskrit manaka, Hindi manakanda, Bengali mankachu), a tall plant, and *A. macrorrhiza* is the boromankachu of Assam, a giant plant with a high content of bitter calcium oxalate in the tuber which has to be leached out before cooking.[2d]

The genus *Colocasia* also originated in India. It includes *C. esculenta*, the well-known arvi, sēppam-kizhangu or shāmagaddē, whose tubers, of a myriad shapes and sizes, are coloured white, yellow, purple and red. There is a suggestion that the ancient terraces now used to grow rice in Kashmir may have originally been set up to raise colocasia tubers.

Also of indigenous origin is the huge elephant foot yam (sūran, sēnaikizhangu), the *Amorpophallus campanulatus*. It has two Sanskrit names, sūrana (Charaka) and arasagna, meaning destroyer of piles;[6j] dried slices were till recently sold in bazaars under the name of madanamast for the treatment of piles and dyspepsia.[2f]

arrack Originally an Arabic word, arāk, for the exudate of date palm sap but later in India and elsewhere it became a term for distilled liquor, especially that from toddy (q.v.), the fermented sap of the palmyra palm.[1h] Pedro Texeira (AD 1587) states that 'araca' is very strong, but improves with age, and that raisins were thrown into it to take off its roughness and sweeten it.[21b] Edward Terry (*c.* AD 1615), chaplain to Sir Thomas Roe, was of the opinion that arrack is very wholesome if taken in moderation.[56] An arrack-based drink was offered by Emperor Jahangir to Sir Thomas which was very strong and made him sneeze; this was a clear spirit made by keeping arrack with sugar in barrels containing the dregs of other wines.[54] The drink punch (q.v.) (from the Sanskrit pancha) was created by the British in India by mixing five components, namely arrack, sugar, spices, lime juice and water, and was first noted as palepuntz by Albert de

Mendelslo in 1638.[1d] Toddy was widely distilled in India; the British administration noted in 1870–90 that in the Bengal Presidency alone, there were 8000 arrack shops, besides 30,000 for toddy, and stills in almost every village; an attempt was made to bring both the manufacture and storage of liquor under control by instituting a still-head duty which had to be paid before any liquor was issued from the stores.[57a]

asafoetida A resinous, strongly flavoured exudate of three species of *Ferula*, each with slightly different properties. The term hingu occurs in the early Buddhist *Mahāvagga*, while the term balhika in the *Kashyapa Samhitā* reflects its import, then as now, from Afghanistan.[6j] The difference in properties between the water-soluble hingu and the highly aromatic oil-soluble hingra from a different species was first noted by a westerner, John Fryer[20b] in *c.* AD 1680, but as early as in AD 1518 Christophoras Acora had described the characteristics of different kinds of asafoetida imported into India.[2d] Only a trace of asafoetida is used in certain dishes of south India, Gujarat, Kashmir and Bengal. Meat dishes flavoured with the spice are mentioned in the *Mahābhārata*.

āsava Generic name for a distilled liquor afterwards flavoured and sweetened. A prefix is used to indicate its source, such as pushpā- (flower), phala- (fruit), madhvika- (mahua), sharkarā- (sugar), sura- (grain) and nārikēla- (coconut). Some have a medical connotation.

ash gourd Botanically *Benicasa hispida*, the Sanskrit kushmanda, Hindi pēthā, Tamil pushinikāyi, and English ash gourd, is perhaps native to Malaysia,[7e,31b] though long known in India. It is cooked as a vegetable, made into halwā, and candied in hot sugar solution to give the fibrous and jujube-like pēthā.

ashvamēdha The Vedic horse sacrifice, described in great detail in the 162nd hymn of the *Rigveda*. The animal was sacrificed, roasted whole, the oozing fat collected, and the body carved to rigid specifications.[59] Each portion had a specific recipient: thus the right thigh went to the brahmin who had chanted the mantrās, and the two jawbones and tongue to the prastōta priest.[60a] In later times, a king would set free a spirited horse to roam freely, accompanied by an army, and battle was given to anyone who challenged the animal, which symbolized the king's authority. On its return the animal was honoured and sacrificed ritually.

aval Tamil for flattened or beaten rice, the Hindi poha. Then as now, rice grains were soaked, roasted on hot sand till ready to puff, and then beaten flat in a pounder. Aval is mentioned in the Tamil Sangam literature of between the third and sixth centuries AD as eaten after being soaked in milk.[61]

aviyal Vegetable dish of Kerala that uses green bananas, drumsticks, various soft beans and fresh coconut gratings. These are first cooked in

coconut milk and then tossed with some aromatic coconut oil and spiced sour curd. The product, served as prasādam in the Padmanabhaswami temple in Thiruvananthapuram, does not contain inauspicious mustard seeds.

avocado *Persea americana*, the butterfruit, has been traced back to 6000 BC in Central America,[31c] where the original native name is aguacatl or ahuacatl.[1e] There are three fruit variations recognized. One is a very large fruit, with a thick and rough skin, and a small, tight seed; another is a small fruit with a thin skin; and the third a purple fruit intermediate in form.[1e] Though the plant seems to have entered India only around AD 1750, it has now run wild on the southern hills. The flesh has a smooth buttery texture. The purple variety has a very high level of fat (25 per cent), and the very large type has about 10 per cent fat.

ayurveda Literally the science of life as it was developed in India, being a holistic view of the body, mind and spirit viewed in relation to the cosmic moral cycle, in which a well-adjusted diet had an important role to play. Concepts and practices that developed over centuries were codified in the *Charaka Samhitā* [24] and the *Sushrutha Samhitā*[33] (each of which include accretions till as late as AD 400); and in Vaghbhata's *Ashtāngahrdyasamhitā* (mid-seventh century AD).[77] All material things were believed to be composed of five elements (earth, air, fire, water and space) in various combinations. In the body these combinations take three forms, vata, pitta and kapha (loosely translated as wind, bile and water, but with a far more dynamic connotation; see individual entries) which, when in balance, result in good health. Anna (diet) is the main agency by which this is brought about, the two others being the use of medicinal herbs and drugs (aushada), and various exercises (vihāra). The choice of food must take into consideration the person's physical constitution and natural temperament (whether sattvik or serene, rajasic or excitable, and tāmasic or courageous; see individual entries), the nature of the malady, the season of the year, and the habitat.

All foods are characterized by their rasa (taste) and gunā (property). There are six basic tastes, and ten pairs of contrasting gunās, such as light/heavy, dry/unctuous and compact/mobile. Deranged vata is calmed by food products that are salty, sour or sweet in taste, and hot, oily or heavy in nature. A pitta-type malady needs food that is bitter, astringent or sweet, and also hot, heavy, compact and slimy. The third dōsha, kapha, is countered by pungent, bitter and astringent products that are keen, hot and dry.

Two other concepts are vīrya, the potency of the food, and vipāka, its aftertaste, which could differ from its rasa or taste.

The class of foods termed sweet include cereals, pulses, milk and its products, most legumes, flesh foods,

sugarcane products, coconut products, and nuts. Acid foods include the mango, pomegranate, tamarind, grape, citrus fruits and āmla. All types of salt (sea, rock, mineral) constitute salty foods, while pungent foods include most spices (ginger, mustard, pepper) and the betel leaf. The bittergourd, products of the neem tree, the jamoon fruit and fenugreek seeds are examples of bitter foods. Astringent foods comprise mainly the barks of trees, and the kattha that is smeared on betel (q.v.) leaves.

Most cereals are sweet and also heavy, and hence build up tissues and provide energy. Honey, though sweet, is predominantly astringent in its aftertaste, and hence weight-reducing. Āmla is sour, and being also cold and soft, is exceptionally effective in restoring balance.

Ailments like dyspepsia, rheumatism, tuberculosis, diabetes and jaundice are explained on the same principle of dōsha or imbalance, and treated by administering corrective foods. Thus antidotes for diabetes include the bitter foods earlier listed.[34,62,325]

B

bādām *See* almond

baghār Derived from the Sanskrit baghārna, this cooking operation connotes the initial shallow frying in fat of spices or flavourants, not usually together, but one after the other (e.g. mustard seed, then onions) before the vegetable or meat to be cooked is introduced. Sometimes the baghār is performed separately, and poured hot over the finished dish, say of dhāl.

bājra Hindi word for *Pennisetum americanum*, which despite its name originated in the Sahel zone of western Africa, where many wild forms still exist.[7g] Bājra must have entered the western seaboard of India around 2000 BC. It has been found (somewhat doubtfully) at Hallur (Karnataka) in 1600 BC, and more certainly about five hundred years later in Ahar (Rajasthan) and in Saurashtra sites.[32a] Indeed bājra, jowār and rāgi, all of west African origin, show up at about the same time in archaeological excavations in India. They are all current staple dietary items of the common folk in the west-lying areas of the country, made into baked rōtis called bhākri (from bājra and jowār) or a porridge termed hittu or a ball called muddhē (from rāgi). Did they all come together, and who was this unsung benefactor of India?

baking Though baking enjoys a Sanskrit term, pūtapāka, it is not a common style of Indian cooking. Ovens have been excavated at Mohenjodaro and other Indus Valley cities, but many of them are large kilns that were used to fire pottery and calcine metal ores.[63a] Baking in a tandoor, where the oven is open and intensely hot, has a somewhat different connotation and is perhaps more akin to grilling. Even the Vedic

sacrifices enjoined such operations, using either a broken potsherd called kapala, or, for the purodāsha offering, a clay plate called the garhyapatya with a number of hollows of different shapes and sizes that yielded cakes of varying kinds.[64,65,66] In the Karnataka area, a hot tile called kenchu was once employed in domestic cooking.[67a]

balanced meal Drawing, without doubt, on ayurvedic practice, Kautilya in his *Arthashāstra* recommends that 'a gentleman's meal' should consist of one prastha (an uncertain quantity, but perhaps around 500 grams) of pure unbroken rice, one-fourth this quantity of pulses, one-sixth of a prastha of ghee or oil, and one-sixty-fourth of a prastha of salt.[6d] For everyday consumption, Sushrutha recommended the shāli (winter) rice, shastika, barley, mung, venison, butter, āmla, rock salt, honey and rainwater; these foods were considered least likely to upset the equilibrium of the body dōshas.[33] In general, quantities were not specified in ayurveda, but left to the capacity of each individual, with a warning to avoid overeating. The total quantity of food was termed sarvagraha.[407]

bamboo An extract of green bamboo stems was one of the beverages permitted to Jain monks.[68] The *Rāmāyana* lists tender bamboo leaves as among the edible items available to exiles in forest areas.[6c]

Bamboo shoots and bamboo rice, as the grains are called, are both edible delicacies. The *Shivatattvaratnākara* (*c.* AD 1700) of King Basavaraja of Keladi describes how bamboo shoots are steeped in salt water to remove astringency before shallow-frying,[50] a procedure still used in the Kodagu district of Karnataka to make the dish called baimblay. Basavaraja also refers to bamboo rice as rājannaakki, or rice fit for a king.[51] In Tamil it is called mungilarisi, a product, in the Sangam period, of mountainous kurinji areas.[69a,69b] As venuyava, the bamboo grain is first mentioned by Apasthamba (*c.* BC 400) as an uncultivated foodgrain which is a permitted food for ascetics who have renounced the world.[6c] Bamboo rice is an unusual commodity. A Kodava verse states that once in sixty years bamboos decay, and once in seventy years famine holds sway. A whole thicket of bamboos will flower, set grain profusely, and die; the seeds fall and new shoots appear quickly. Seeds produced in such abundance are naturally an important famine food for the poor in those areas.[70] The seeds resemble small grains of paddy, and are husked by pounding; the starchy grain is either cooked like rice, or ground and baked into a rōti.

banana Both the Sanskrit terms for the banana, mocha and kadali (from whence the Hindi kēla), are believed to be of Munda origin. Mocha was adopted into the Latin botanical nomenclature for the banana, which is *Musa paradisiaca*, the fruit of paradise. The Tamil term vāzhai is of indeterminate origin.

The banana is a rare example of a fruit in which three genes from one of its wild parents, *M. acuminata*, confer the ability to produce fruit without the need for seeds.[7e] Selection for thin pulpy fruit masses by early man in the Malaysian area led to edible seedless fruits that were either diploids (AA) or triploids (AAA). When these plants reached India several thousand years ago, they crossed with the wild plant *M. balbisiana*, the carrier of the genome B, to give a diploid AB, and three vigorous and large-fruited triploids, AAA, AAB and ABB.[31d] Today the numerous banana varieties the world over all fall into ten cultivars, two diploid and eight triploid.

The word banana is of African origin, from banana, a single finger or toe, or its plural banan.[1f] The word was carried by African slaves to the Americas, where it became established. In British India the term plantain was in common use. Later it developed the connotation of a cooking, as opposed to an eating, variety an untenable distinction since many varieties are both.[1g] The word plantain is itself an anglicization of the Spanish plantano, still in use in the Philippines, and derived perhaps from the Latin planta, for a spreading leaf.

Foreign visitors to India noted the abundance and variety of bananas. Ludovico di Varthema, who was mainly in the Vijayanagar region in AD 1505, described three varieties—one long, one short and sweet, and one bitter.[21c] Tasting for the first time a banana just a finger long (perhaps the sweet and fragrant poo-bālē or yellaki-bālē of the south), Jahangir exclaimed that no other banana could compare with it.[41]

It is only as late as in *c.* 400 BC that the banana is first noted in Pali/Sanskrit literature, though in the south the fruit must have been known earlier.[6c] Among the several fruit juices, panaka, permitted to Buddhist monks was that from the banana,[6c] and green bananas were permitted at an ancestral shrāddha ceremony.[71] In ayurvedic parlance, the banana is classed as a cold food, which suppresses pitta.[325]

The Sangam literature of south India frequently mentions the banana. It was served in a farmer's home to a wandering minstrel,[72] and 'in the cool of the evening', rest houses were crowded with visitors who feasted upon luscious fruit, which included the banana.[72]

Ripe bananas are an ingredient of southern confections. The unniāppam of the Ganesha temple in Kerala takes the form of spongy fried pieces of a mixture of rice powder, banana, jackfruit and jaggery. Thin banana slices are deep-fried in coconut oil to crisp yellow chips, and thicker wedges are dipped in jaggery paste ground with ginger, before deep-frying. The koalēputtu of Kodagu is a mash of ripe bananas, roasted rice powder and wedges of coconut, steamed in a banana leaf packet, and eaten hot or cold with fresh butter.

Green bananas are cooked in the south and east as a vegetable. The Kerala aviyal (q.v.) uses it, and in Bengal it is cooked with ginger. The core of the banana stem, called thōd, is also a delicacy, and features in a meal served to the mystic Chaitanya (AD 1480–1533) by his admirer Sarvabhauma.[73]

Banana leaves are large and waterproof, tailor-made for use as disposable plates that avoid cross-pollution. Several meals served alike to kings and brahmins on banana leaves are described in AD 1485 by Terekanambi Bommarasa, and in AD 1516 by Mangarasa, in the Karnataka area.[67] Concepts of ritual purity also dictate that while bananas, and other fruits with enveloping skins, can be bought in the marketplace even after being handled by all and sundry; when brought into the kitchen area and peeled, they become restricted kaccha foods to be used only by members of the family.[22,23]

banyan With its aerial roots descending into the earth, and the huge canopies that it creates, the banyan tree, *Ficus benghalensis*, was an object of astonishment to visitors to India. Its small, insipid frúit was described as a fig by Pliny the Elder (AD 23–79) in his encyclopaedic *The Natural History*,[40a] and it is mentioned in the earliest Sanskrit text, the *Rigveda* (*c.*1500 BC).[6a] Though at best an emergency human food, banyan figs are relished by birds. Banyan figs, and those from related *Ficus* trees, are shunned by Jains (q.v.). Banyan leaves are stitched together using bamboo slivers to yield waterproof and disposable cups and plates, which keep well on drying, even if they are somewhat brittle (*see* p. 133).

barks The astringent barks of trees like the kapittha (*Limonia acidissima*), mesashringi (*Gymnema sylvestre*) and kādamba (*Anthocephalus cadamba*) were employed historically to flavour wines and distilled liquors.[74] Cinnamon (q.v.) and cassia barks constitute condiments.

barley One of the oldest staple foods, which originated in the Fertile Crescent area of the Middle East. The wild forms are only 2-rowed, but after about 6000 BC, cultivated forms that are both 2-rowed and 6-rowed appear. The finds of barley at Mehrgarh in Afghanistan after 5000 BC, and in neolithic Chirand (*c.* 3500 BC) in Bihar, are all cultivated 6-rowed forms, but of two types, naked and hulled.[8Ab] Today naked forms are preferred for growing in hilly areas, and hulled forms in the plains.

In the Indus Valley, barley accompanied wheat as a staple in Mohenjodaro, but in Chanhudaro, where the alkaline soil is less suited to wheat, barley appears to have been the main staple.[75] Later sites in western India like Inamgaon (1600–700 BC) near Pune, and Jorwe (750 BC) have yielded barley.[76a] In Vaghbhata's time around the seventh century AD, barley was a distant second to rice as a staple, though it was ahead of wheat.[77]

Today it is only a minor cereal crop.

Barley in Sanskrit is yava, the only cereal mentioned in the *Rigveda*. It was eaten thereafter in many ways:[6a,6b,6c] as saktu (sattu) or coarse flour; in fried form; as apūpa or cakes of barley flour, which were then boiled or fried and dipped in honey; after parching to dhānāh and eaten as a gruel, vatya; and ground and mixed with jaggery to yield abhyūsa. It was a staple recommended to Buddhist monks for daily use.[25A] Barley was prescribed by Sushrutha for loss of appetite, debility and thirst.[33]

Visitors to India noted the use of barley as a food of the poor in about AD 1200 in Kashmir.[78] It was the base of a sweet drink called fuqqa in the Delhi Sultanate court *c.* AD 1340.[53] Its use as a food for horses about the same time is remarked on by Ibn Battuta,[8Bb] and about two centuries later in Vijayanagar by Domingo Paes.[53]

basil *Ocimum sanctum* is an ancient aromatic herb with a Sanskrit name, thulasi, that may even be of aboriginal origin. The small shrub with ash-green leaves is sacred to Vishnu, and is grown on a square brick pedestal-urn in almost every Hindu courtyard, and worshipped daily. Decoctions of the leaves are used against common colds and skin complaints.

bath A bath has considerable ritual significance in Indian daily life. The cook in a household could enter the kitchen area only after having had a bath and donning unstitched, freshly washed, clean clothes. Should he perforce have had to leave the kitchen before the meal was cooked and served, a fresh bath and clothes would be called for. Even today a stitched shirt or jibba will be removed before cooking commences, for fear of extraneous pollution. A bath was mandatory on returning home after a funeral. A bath had to be taken only in flowing water, or in a large body of open water, or by pouring water from a receptacle over oneself, using a smaller vessel.

bāth Derived from the Sanskrit bhatka, the term bāth (more correctly bhāth) means a pottage, generally made of rice or wheat. It is perhaps of more frequent use in south India. Thus kēsari-bāth is a sweet thick concoction of fried wheat grits flavoured with saffron stamens (kēsar) which impart a golden colour and a fragrant aroma. Vāngi-bāth is a Tamil dish of brinjals and rice with tamarind spicing.

beans Term often loosely used for any legume, and especially for māsha (urad or black gram), when translating Sanskrit texts into English. It is more appropriately applied to larger pulse entities with shiny coats, such as the French bean, kidney bean, haricot bean and soybean.

beaten rice *See* aval; parching.

beef Most Hindus, Sikhs and Parsis in India today, even when they eat flesh, desist from consuming beef. Yet this was not always so. The Vedic sacrifices, after which the sanctified

meat was eaten, include bovines, and even at a funeral ceremony, the *Ashvalāyana Grhya Sūtras* prescribe the sacrifice of a cow for consumption.[6b] Frequently it is specified that the sacrificed cow had to be a barren one, 'destined for the gods and the brahmans',[78] or a bull, suggesting an economic motivation for sparing the cow. The *Rigveda* itself has two verses in praise of the cow as Aditi, the sinless one,[6a] yet in the *Shatapatha Brāhmanā*, the imposing Vedic sage Yagnavalkya, after listening to all the arguments against eating beef, declares: 'That may well be; but I shall eat of it nevertheless if the flesh be tender (amshala).'[79] In their *Dharmasūtras,* Vasishta, Gautama and Apasthamba prohibit eating the flesh of both cows and draught oxen, while Baudhyayana exacts penances for killing a cow, and stricter ones for a milch animal or draught ox.[60] Starting with prohibitions on cow slaughter for ritual brahminical sacrifice, revulsion spread to the eating of all types of beef derived in such sacrifices, and eventually to all slaughter for food. Buddha in the sixth century BC was strongly against ritual animal sacrifice as a means to salvation, and his contemporary Jain leader, Mahavira, laid down extreme strictures to avoid killing even unseen germs to obtain food (*see* Jains, food of). In the third century AD the Buddhist emperor Ashoka was a powerful advocate of ahimsā (q.v.) or non-injury.

The observant visitor Al-Biruni in the mid-eleventh century AD gives his reasons why cow-eating 'though prevalent earlier, was not allowed later'.[80] It had been forbidden, he writes, 'on account of the weaknesses of men, who were too weak to fulfil their duties, as also the Veda . . . This theory however is very little substantiated. Other Hindus told one that the Brahmans used to suffer from the eating of cow's meat . . . as it is essentially thick and cold . . . the power of the digestion is so weak that they must strengthen it by eating the leaves of the betel after dinner, and by chewing the betel nut. I for my part am uncertain and hesitate between the two different views . . . (here there is a lacuna in the original manuscript) . . . As for the economic reason, we must keep in mind that the cow was the animal which serves man in travelling by carrying his load, in agriculture in the works of ploughing and sowing, and in the household by the milk and the products made from it. Further man makes use of its dung, and even of its breath. Therefore it was forbidden to eat cow's meat'.[80] Perhaps surprisingly, even Emperor Humayun in the late sixteenth century AD decided, after much reflection, that 'beef was not a food fit for the devout'.[80A]

Beef continued to be eaten by non-brahmins. Sushrutha even described beef as being a pavitra or pure food.[81] Today even Hindus who eat meat avoid beef. The Syrian Christians of Kerala relish beef;

eracchi-olathiyathu is a fried beef dish served at their weddings, eracchi-thōran a dry cubed beef dish, and kappa-kari is beef cooked with pieces of tapioca. Bohri Muslims have a malāi-tikka kabāb of beef, and most, but not all, Muslims partake of beef.

In India buffalo (q.v.) meat is also termed beef. The *Rāmāyana* reflects the mores of kshatriya nobility, and for a feast given by King Dasharatha, the father of Rama, 'buffalo calves (were) roasted on spits with ghee dripping on them'.[58] Buffalo meat, in the view of Edward Terry (*c.* AD 1600), was not as 'wholesome' as English beef.[82]

The people of south India, before the advent of the Aryans, relished beef, as reflected in the literature of the Sangam age (q.v.), and old Tamil even had four names for it.[83] The *Perumpānūru* describes a fat bull being slaughtered in the open, and even the meat of the buffalo was eaten.[83]

beer Beer was imported by the British from almost the start of their stay in India. Beer manufactured on European brewing principles was first produced in the country in AD 1825 in Shimla. By the Second World War some 3 million gallons were being produced annually.[84]

bees *See* honey.

begging bowl A polished bowl, pātra, permitted to a Buddhist monk to receive alms as food.

bellows Made of leather and fitted with an outlet tube, the bellows for fanning embers to a blaze was termed dhmatr in Sanskrit.[11c]

Bengal gram So called because it was first encountered by the British in Bengal, the Bengal gram is chanaka in Sanskrit, chana in Hindi, kadalai in Tamil, chickpea in English and botanically *Cicer arietnum*. The khalva of the *Yajurveda* (*c.* 1000 BC) may refer to it, while chanaka occurs in early Buddhist writings (*c.* 400 BC).[6j] It has been found in 2500 BC layers in the Indus Valley site of Kalibangan, and slightly later in Atranjikhera.[85] The postulated centre of origin of the chickpea is the Caucasus or Asia Minor,[1i] and it shows up as early as in 5400 BC in Hacilar in Turkey.

In the event, two seed types evolved: in India a small, wrinkled, dark-coloured seed, and in the Mediterranean a larger, smooth, light-coloured one.[1j] The very large kābuli chana (which is made into the spicy relish cholē) is a very recent introduction into India, perhaps in the eighteenth century from the Mediterranean by an overland route.[1j] South India may have received the chickpea only as late as around 500–300 BC,[32b] probably from overseas, since the Tamil word kadalai (meaning sea-shore) bears no resemblance to the Sanskrit. Tamil Sangam literature (q.v.), refers to 'the bean that grows on stout creepers' which is 'fried in sweet-smelling oil'.[86a] This could well refer to the spiced sundal snack of the present.

Bengal gram is the major pulse of

India. The whole pulse is cooked in a gravy or to dryness, or is cooked with gourd in Bengal. It can be cooked in Karnataka (q.v.) with greens to give a melōgara, or in sweetened milk to yield a pāyasam.[67b] The chickpea is an auspicious item, the use of which is banned in a house of mourning.

Puffing the gram in hot sand causes the skin to loosen and the grain to swell to a crunchy, shining, yellow product. This can be cooked in water as a dhāl dish, or fashioned into laddus using jaggery or sugar syrup, or shaped into vadās and deep-fried. Grinding puffed Bengal gram yields the versatile yellow flour bēsan (q.v.).

Bengali food Bengal has always had an abundance and variety of food. A medieval text, the *Shunya Purāna*, notes that fifty kinds of rice were then grown in Bengal.[87] European visitors later exclaimed in wonder at its bounty: 'The country abounds in grain of every kind, sugar, ginger, the best place in the world to live in' (Varthema, *c.* AD 1505).[88a] And from Bernier (*c.* AD 1660): 'Bengal abounds in every necessity of life . . . rice . . . wheat . . . three or four sorts of vegetables . . . geese and ducks . . . goats and sheep . . . pigs . . . fish of every species, whether fresh or salt, in the same profusion . . . this is a fertile kingdom'.[19a] About the same time, Niccolao Manucci (*c.* AD 1660) described another fruit in India called anānas (the pineapple, which must have not long come in from South America): '. . . in no part of India have I seen them in such quantities as in Bengal where they were large and fine'.[8Bd] A couple of decades later John Fryer (AD 1672–81) writes that in Bengal butter 'is in such plentiful supply that although it be a bulky article to export, yet it is sent by sea to numerous places';[20b] probably clarified butter or ghee is what is meant.

Bengal has long been the home of the sugarcane. From the Pundra area emanated the famed paundra variety of superior sugarcane,[17Ab] which Charaka contrasts with the inferior vainsaka variety.[6i] Even the Sanskrit word guda for jaggery is stated by Charaka (though others demur) to be derived from the old name for Bengal, Gauda.[6i] Apart from the sugarcane, another source of jaggery in Bengal was the sweet juice that flowed from incisions in the trunk of the palmyra palm, which was collected in clay pots smeared with lime to prevent fermentation.[83] This was then boiled down in cauldrons and stirred with wooden ladles till the 'strike' occurred, when the hot mass was transferred to smaller vessels to set. Palm jaggery gives a distinctive flavour and sweetness when used in Bengali sandesh and sweet curd (mishti-doi, p. 160).

Panicum grains were grown even a century ago in Bengal, and termed chinakaon.[2g] Bananas abound: a small, sweet variety, chāpāl, was served to Chaitanya in about AD 1530, and sonkel and bankel are current varieties. Certain exotic fruit first took

root in Bengal. Pineapples have already been described; the litchi fruit from China is another, and so is the large citrus, the pomelo. Being the seat of the British empire in India for a century and a half, a Royal Botanic Garden was set up in Sibpur in AD 1787 which served as the conduit and nursery of many exotic food plants brought into India. These include tea, coffee, maize, tapioca, potato, arrowroot, several European vegetables, cocoa, vanilla and new varieties of ginger and cardamom.[8Ca]

Certain accounts in Bengali literature reflect some of the nuances of Bengali food, though a recent book on food and drink in ancient Bengal[88A] reveals only meagre historical documentation. A feast given at the home of the advaita Sarvabhauma to the mystic Chaitanya (AD 1486–1533) consisted of[73] shāli rice drenched in yellow ghee, surrounded by leaf cups of dhāl, sāg and vegetables like the parwal, pumpkin and brinjal, several tubers and banana flowers. Also served were fried bodas (vadās) of mung and urad, singhādās or deep-fried puffs stuffed with coconut, various sweet-sour relishes like ambal and tauk, sweet rice-milk pāyesh, thickened milk, small sweet bananas (chāpāl), dahi and sandesh.[73] The *Krishnamangal* of Krishnadas (*c.* AD 1525) has a list of items cooked by the gopis and gopas of Brindavan, at Krishna's request, for worship.[19b] This includes various sūpas (soups), greens (some cooked in honey), barāmankachu (a large arum tuber, *vide* aroids), bananas with paneer, brinjal with mankachu (*vide* aroids), fried green bananas, fried horseradish and chutney, and as dessert, kheer, bananas, laddu and other sweets. About the same period, literary works describe various greens like bathua, kalar, kacchu, gima and kumra, and vegetables like achyuta, patōl, basthuk, kol, salincha and hilancha.[53] The mēals described in the *Chandīmangala* (AD 1589) by Mukundaram Chakravarti are part of two tales that furnish the opportunity for numerous culinary nuances, which illustrate in practice not just Bengali food items, but concepts linking character, mood and food that characterize the Hindu ethos.[89] One tale is of the hunter Kalketu and his wife Fullara, and the other of the trader Dhanapati, his good wife Khullana and his evil wife Lahanā who is childless. Lord Shiva is of a tāmasic (q.v.) temperament, choleric and violent: when worshipped, he is offered nothing that has been cooked in ghee (which is a pure and luminous sattvika product), but only food cooked in pungent mustard oil. From a long list of food items, four may be singled out: brinjals mixed with bitter neem leaves, pungent mustard leaves used as a pot herb, lentils seasoned with sour lime juice as a relish, and for dessert, sour green mangoes cooked in lime juice. Lord Vishnu, in contrast, is of a serene, sattvika (q.v.), temperament; he does not demand the usual starting sour item, nor even pot herbs, but instead is

served a tender parwal browned in ghee, and a number of milk-based sweet items, all white in colour, round in shape, and suggestive of his global terrestrial kingdom. Two pregnant women get food that reflects their social class. The poor hunter's wife gets nothing cooked in ghee, only roasted food items, while the rich merchant's wife gets food with a tart flavour, rice but no tubers, and a variety of kitchen herbs. Finally, the hunter himself, a rajasika (q.v.) even by profession, gets neither rice nor ghee to eat, nor even pot herbs, but only tubers.[89]

The range of food materials in moist and fertile Bengal is exceptionally wide. A variety of harmonious combinations is employed:[90] pumpkin and shrimps, pumpkins and stems of puin (the climbing spinach), urad dhāl with spices like saunf, ginger and asafoetida, whole chana with gourd, and sponge gourd with posto (poppy seeds). Green bananas and ginger are considered an incompatible combination. Flowers of the pumpkin and banana are eaten, so is the pith of the banana, called thōd. Tender drumsticks, water reeds, raw jackfruit, and the peels of the potato and pumpkin are utilized.[90] A spice mixture of five seed components unique to Bengal is pānchphorōn, consisting of equal quantities of onion seed, celery seed (rādhuni, which can be substituted with mustard seeds), aniseed, fenugreek and cumin (jeera).[91]

The style of cooking in West Bengal differs from that in East Bengal (now Bangladesh). The staple in both is of course rice, but the latter hardly employs dhāl and is strong on fish. West Bengalis prefer fish bred in tanks and from estuaries, like mangor and tapsee, and East Bengalis fish from big rivers, but the river fish hilsa is rated highly everywhere. Both cuisines employ mustard seeds in several ways: fried in oil, carefully crushed to yield a pungent paste, and as a source of oil used as a cooking medium. The choice of spices is different, with a liberal use of poppy seeds (posto) in West Bengal. The latter cuisine is strong on fried stuffed snacks like kachuri and singhādā, and in a variety of milk-based sweets.

The procession of tastes at a Bengali meal runs from a bitter start to a sweet finish.[91] Lunch will start with a bitter item shukto (this is usually omitted at dinner) made from neem or other bitter leaves, the bittergourd, brinjal, potato, radish and green bananas, with spice pastes that use turmeric, ginger, mustard and celery seed. Rice is first savoured with hot ghee, salt and green chillies; then comes dhāl accompanied by fried vegetables (bhājā) or boiled vegetables (bhāta), followed by spiced vegetable items like dālna and ghonto. Then come fish items, first lightly spiced ones like māccher-jhōl, and then those more heavily spiced, followed by a sweet-sour ambal or tauk (chutney) and fried pāpads. A dessert of mishti-doi (accompanied by dry sweets), or pāyesh (ac-

companied by fruits like the mango) ends the meal, with paan (a betel quid) as a terminal digestive. Meals were traditionally served on a large circular bell-metal thāla and in bhātis (bowls), except for the sour items. The night meal might include fried wheat lucchis, a palāo and a dālna of delicately spiced vegetables.[91] Bengali palāo is of a sweetish kind, with raisins, dried fruits and nuts, coloured and flavoured with saffron.

Bengal at present has the lowest proportion of vegetarians (about 6 per cent) of any state in India. The brahmins of Bengal have from early times defended the eating of fish. After quoting the views of earlier arbiters like Yagnavalkya, Manu and Vyasa, the brahmin politician and scholar Bhatta Bhavadeva (eleventh century AD) says: 'All this prohibition is meant for the prohibited days like chaturdasī and others . . . so it is understood that there is no crime (dōsha) in eating fish and meat.'[92] The reformer Srinathacharya also allowed Bengali brahmins the use of meat and fish except on some parvan days.[92] Even the great Bengali spiritual leaders of recent times ate fish. In AD 1822 Ramakrishna Paramahamsa stated: 'I love to eat fish in any form', and it is on record that Swami Vivekananda enjoyed a rice meal that included a shukto of fish, māc-cher-jhōl (a liquid fish curry), a sour fish preparation, sweet curd and sandesh.[90]

Even the Gowda Saraswath brahmins of Karnataka eat fish, probably a carry-over from their original home in Bengal (Gauda). The strict vegetarians of Bengal are the Vaishnavites centred in Navadvip (the home of Chaitanya) who consume neither meat nor fish, nor even 'hot' foods like onions and masoor dhāl.

Bengali sweets The Bengali has always had a sweet tooth. Even in AD 1406, the Chinese admiral Ma Huan visiting Bengal notes the prevalence of 'white sugar, granulated sugar, candied or preserved fruit'.[26Ba] The *Chandīmangala* mentions kheer, rabdi (thickened and sweetened milk), mānda, kāndu and nādu, and the *Chandidās Padāvali* of the same period mentions various sweets (bibidha-mishta and sakar-mittāi) which were distributed by his father Nanda when Sri Krishna was born, while the baby itself received from the cowherds anna, curds, mishta, mittāi, chini (sugar) and small bananas (chāpakola).[93] Other works of the sixteenth century mention chhānaborā, khāja, jilēbi, pishtak, modak, mālpo, sītamisri and sandesh.[53]

A new thrust to sweet-making in Bengal occurred when the Portuguese gathered there; by AD 1650 they numbered 20,000, being settled mostly near Hughli.[94] They were skilled in the art of preparing sweet fruit preserves,[19a] and were fond of cottage cheese, which Bengali sweetmeat makers began to first furnish and then utilize in imaginative ways. Simple sweetened chhāna is kānchāgollā, but soon sandesh began to be cast in various moulds (to

resemble flowers, fruit and shells), given various colours, sweetened with palm jaggery, sugarcane, jaggery and sugar, sugar-coated to yield manōhari and flavoured with jackfruit, orange peel and rose essence. Sandesh (the name traditionally derived from the term given to the bringer of good news) has of course long been known, and may even have been a khoa-based product till the efflorescence of sweets based on chhāna came about.

In 1868, 22-year-old Nobin Chandra Das created from chhāna the spongy rasogollā cooked in sugar syrup. Some fifty years later his son Krishna Chandra Das created the rasmalāi, flattened chhāna patties floating in thickened sweet milk, which he went on to manufacture commercially through his firm, K.C. Das and Co.[94] Many new products were developed by enterprising moiras;[95,96,93,98] khīr-mohan and cham-cham, mouchak (shaped like a beehive), sitābhōg, resembling rice grains, gulāb-jāmun, lāl-mohan and totāpuri, fried products in sugar syrup and ledikeni, a corruption of Lady Canning, the Vicereine of India in whose honour it was created. Pantua and chitrakoot are again chhāna-based, and in Bengal even the jilēbi is termed chhānar-jilipī and employs chhāna to create whorls that are deep-fried before placing in syrup.[91] So numerous are professional sweet-meat makers, and so varied and excellent are their products, that households prefer to buy them, making at home only the simpler pāyesh and pithē desserts that derive from milk and thickened milk, rice, ravā, coconut, and sugar or palm jaggery.

bēr Fruits of the *Zizyphus* species are termed bēr, and at least six varieties now grow in India.[99a] It is a very ancient fruit. A clay representation was found in Harappa, and carbonized remains in Navdatoli (*c.* 1600 BC).[6j] Sanskrit literature, starting with the *Yajurveda* and the *Brāhmanās*, describes several varieties of bēr fruit: the large badara or vadari (which Xuan Zang calls bhadra),[100a] the medium-sized kuvale or kharkhandu, the sauvira variety, and a wild type, orange in colour.[6j] Dalhana (*c.* AD 1100) of Kashmir talks of a 'bēr as big as a fist, and very sweet'.[6j] Tamil Sangam literature also mentions the fruit.[69]

In ritual eating terms, it was classed as a food that had to be chewed (like the grape and pomegranate), and was served at a meal before fruits like the orange, mango, date and pieces of sugarcane that could be sucked.[6k] Bēr fruit was permitted to Jain monks[57] and was one source of the class of sweet fruit beverages termed panaka.[6f] Like certain other sweet fruits, the bēr was also fermented to obtain alcohol.[6f] Dried bēr fruits lose their sliminess and develop a slight sourness, like dried apple rings, that makes for pleasant eating.

bēsan Puffing the Bengal gram (q.v.) on hot sand also causes its brown covering to disengage, releasing a

shiny yellow kernel. This is ground in stone mills (chakkis) to yield bēsan flour, or kadalai-māu in Tamil. It is the batter usually chosen to make deep-fried snacks. The batter by itself is deep-fried to yield a variety of crisp snacks, like pellets of boondi, strings of sēv, and the Gujarathi snack forms nāsto and ganthia. Boondi pellets, coarse or fine, are moulded with jaggery or sugar syrup into laddus, an ancient confection. The dhōkla of Gujarat is curd-fermented bēsan steamed in a thick layer to a spongy yellow product, while the khāndvi is a thin, rolled-up pancake of bēsan. Various materials may be dipped in bēsan batter and deep-fried: arvi-na-patra (colocasia leaves), bhāji or bhajji (onion rings, green chillies and slices of potato, tomato and brinjal), bōnda (mashed potato), pakoda (perhaps cashews or groundnuts) and certain types of vadās. Fried lumps of fermented bēsan yield the wadi or warrian.

Baking bēsan together with grated coconut and sugar yields the sweet Goan concoction Dos de Grão, with a thick, firm crust and a chewy centre. Mysore pāk, with a delicious granular texture, is essentially bēsan cooked thick with ghee and sugar.

betel leaf *See* areca nut.

beverages In the past diverse materials furnished beverages. Panaka connoted the juices of sweet fruits like the mango, pomegranate, citrus, grape, date, bēr (q.v.), banana (q.v.), apricot and jackfruit.[77] Three such fruit juices with honey and water constituted panchamrutha, while a panaka thickened by boiling down was yusa. Rāga denoted the juice from sour fruits like the phālsa, tamarind, lime and jamoon, sweetened with sugarcandy and spiced with black mustard seeds,[77] while sādhava were sour fruit juices thickened over a fire. In south India, beverages were made from two sour materials, tamarind and nellikāi (āmla).[101] The water of the tender coconut was an ancient southern thirst-quencher, and a mixture of this with sugarcane juice and the sweet sap of the palmyra palm yielded munnīr, a popular drink with women in the *Puranānūru*.[102] A popular morning beverage all over south India was the water from boiled rice, soured overnight by fermentation to kānji or kānjika,[103a,104] and usually drunk salted and spiced.

Milk of course was itself a beverage of high prestige, but even more common was buttermilk, which was of two kinds. One was lassi, made by whisking curd with water, salt and some spices (lemon, ginger, curry leaves). The other was chhās, the liquid left after curd has been churned and butter removed. Buttermilk was drunk to accompany a meal or as a refresher in summer; it was popular all over India, and has five names in old Tamil.[105]

The natural sweet beverage of India was sugarcane juice, often drunk spiced with ginger. The Muslim advent in the second millennium AD brought in new types of sweet sherbets, often coloured and

flavoured with essences like rose, kēvda (screwpine) and herbs. The sweet falooda (q.v.) was a blend of milk or cream with the strainings (gluten) of boiled wheat, gelatinous seed granules (for which a later substitute was sago) and sometimes fruit juices.[80A] A drink called fuqqa, served at the court of the Delhi Sultanate in the thirteenth and fourteenth centuries, was based on barley.[53]

Some beverages had medicinal qualities. The juice of the radish, parwal and neem fruit was specified for fever by Sushrutha,[33] and barley water (yavodakā) was prescribed for thirst, fever and debility.[33] Milk was indicated in dysentery, and sugarcane juice for biliousness.

Two composite beverages had ritual significance. Panchagavya was the supreme purificatory material, mostly sipped ritually or even rubbed on the body. It was a mixture of five products derived from the cow — its milk, curd, ghee, urine and dung, so sacred that no one other than a brahmin could use it![107] Madhuparka was an auspicious ritual beverage[13] consisting of ghee, curd, milk, honey and sugar. It was offered when welcoming a guest to one's home, given to women after five months of pregnancy, placed at birth on the lips of the firstborn son, and offered to a student when he left home for a long apprenticeship with his guru. A suitor received it on arrival at a girl's home, and again when he arrived as a bridegroom for the wedding ceremony.[13]

beverages, alcoholic As early as *c.* 2000 BC, the Indus Valley civilization seems to have practised not only alcoholic fermentation, but even distillation. From clay items found in excavation sites, a complete distillation outfit has been assembled.[108] A circular basin, with a wide hole at the base, was fitted snugly on the mouth of a water pot. In the hole was cradled a smaller basin with several perforations in its base, an item repeatedly found in excavations in the Valley, and for which no satisfactory use had been assigned. Alcohol boiled in the lower pot rose through the holes and condensed on the underbelly of a handled vessel (which held cold water) placed on top of the assembly, to fall in drops into the annular space of the fitted basin. This distilled product may well have been the intoxicating liquid called sura (q.v.), derived from fermented rice and barley, which is condemned in the *Rigveda*.[6a]

Later Vedic literature mentions a sweetened drink made from fermented cereals called kilāla, a filtered rice gruel liquor, māsara, and a fermented product from certain flowers and grasses called parisruta.[6a] Subsequently, numerous liquors find literary mention. The *Rāmāyana* has four,[109] Kautilya mentions twelve[16] and Charaka lists no less than eighty-four.[24]

A variety of starchy or sweet materials was used for fermentation. These were grains (rice, barley),

beverages, alcoholic

honey, sugarcane products, sap drawn from the coconut and palmyra tree, numerous sweet fruits (grape, mango, date, bēr) and flowers (mahua, kādamba). The *Arthashāstra* is the only work which contains instructions for the preparation of alcoholic beverages,[16] but in language so terse that it has been translated very differently by various scholars.[110] The raw material was fermented using equal quantities of rice and urad dhāl, and a small quantity of morata (perhaps the fruit of *Alangium salviifolium*). Optionally six other spices (which are well known to carry enzymes) were employed. After fermentation, and even after distillation, where this was practised, additions were made of sweetening agents, spices and astringent materials. Sweeteners included sugar, jaggery, molasses (phānita), honey, grape juice and the extract of mahua flowers. The spices added could include long pepper, round pepper, nutmeg, cloves and cardamom, while the astringents used could consist of the barks of the trees mesashringi (*Gymnema sylvestre*) and kapittha (*Limonia acidissima*), areca nut, or the well-known triphala (q.v.), a mixture of three myrobalans.

Among the grain-derived products were māsara, kilāla, kashāya, prāsanna and svetasurā.[111a] Māsara may have been a pre-Aryan drink from barley (and later rice) gruel, and prāsanna was fermented rice flour, flavoured with spices, bark and fruit. In svetasurā, clarity was achieved by adding sugar or licorice solution to prāsanna. With sugar as a base, madhira of a high quality was brewed, as well as the distilled liquor shīdhu which was red in colour from the dhātaki flowers that were added as a flavourant. Āsava was a generic term to which was prefixed the source, like pushpā- (flower), phala- (fruit), madhvika- (mahua), sharkara- (sugar) and nārikēla- (coconut). Āsava is sometimes classed as simply an extract, but in other contexts it was a distilled drink with fruit and flower additives. From fruits as raw material come sahakarāsura and mahāsara (both probably from the mango), khajurāsara (date), kādambari (the kādamba fruit), kaula (bēr) and madhu and mrdvika (grapes). The alcoholic drinks that were flower-derived were parisruta, vāruni (mahua) and jāthi (jasmine). The distilled drinks were sura, madhya and shīdhu. The favourite drink of royalty was maireya, which was offered, for example, to Sita by Rama in the *Rāmāyana*;[109] since kshatriyas were not permitted grain-based liquors, maireya must have been based on sugar or fruit, almost certainly distilled, and spiced, flavoured and often sweetened with expensive honey, with cheaper guda, or with even cheaper molasses.[112] The sweet exudates from the spathes of the palmyra or coconut palm were fermented to yield thalakka (thari, toddy). From Afghanistan were imported kapisayani and harihūraka, derived from white and black grapes respectively.[6c]

At the height of its trade with Rome in the early Christian era, south India also imported wine in con-tainers called amphorae (q.v.) for use by the nobility. But the common liquor was toddy derived from palmyra and neera saps. The *Puranānūru* tells us that 'toddy flows like water in the port town of Muziris'.[102] The best toddy was claimed to be made in Kuttanad,[113] now in Kerala. From this toddy was distilled arrack, a favourite with sailors.[86] Rice grains were also fermented 'in strong-mouthed jars', to yield 'in two days and two nights a high-flavoured wine'.[83] A home-brewed product was called thoppi, and the wealthier people could add fragrant dhātaki flowers during brewing.[72] The flavour of wine was enhanced by filling it in the hollows of stout bamboo stems which were buried underground.[69] Wine brewed from honey in mountainous regions was also matured underground.[69] Mandai was the term used for the liquor drinking bowl.

Brewing was practised all over the country, as indicated by stray references. Extensive drinking was noted around AD 600 both in Kashmir[114] and in Assam, where tribes brewed a rice beer called laopani.[115] Xuan Zang in the seventh century noted that kshatriyas drank liquor brewed from the grape and sugarcane, vaishyas preferred strong distilled liquor, and brahmins drank only fruit juices.[19a]

The Quran prohibits the use of alcohol and of games of chance since 'in both there is great sin and harm'.[115a] Elsewhere wine is referred to indirectly as khamar, which means to cover up, because it clouds the brain.[116b] Despite this, the Muslim nobility in India did generally imbibe liquor right from the Sultanate period in Delhi. The first Mughal emperor, Bābar, had periodic bouts of abstinence, when he would break up his flagons and goblets of gold and silver and give away the pieces,[117] only to resume drinking and the use of bhang, with the explanation: 'The new year, the spring, the wine and the beloved are pleasing; enjoy them, Babar, for the world is not to be had a second time.' Akbar, according to Father Monserrate, rarely drank wine and preferred bhang.[106a] He enforced prohibition in court, but relaxed the law for European visitors.[83A] Jahangir, by the end of his reign, would imbibe twenty cups of double-distilled liquor in a day.[83A] Shahjahan drank in moderation, and Aurangzeb was a strict teetotaller who issued severe prohibitory orders on all his subjects, Hindu and Muslim alike.[83A] In contrast, his unmarried sister Jahanara Begum was extremely fond of wine. It was imported from Iran, Kabul and Kashmir, and also distilled in her own home, 'a most delicious spirit', according to Manucci,[55] 'made from wine and rosewater, flavoured with many costly spices and aromatic drugs'.

From the beginning, drinking was frowned upon in the *Rigveda*, and subsequently always interdicted for brahmins and students. Yet the *Sūtras*

enjoin that strong liquor be served to guests as they enter a new house, or when a bride first enters her husband's home.[6b] Kshatriyas and vaishyas could take liquor brewed from honey, mahua flowers or jaggery, but not spirits distilled from fermented grain flours.[6b] Thus Sita promises the river Ganga a thousand jars of wine should the party return safe from exile.[109] And when they do so, the atmosphere of Ayodhya reeks with wine as its citizens celebrate.[109] The *Arthashāstra* refers to public taverns in almost every village, well furnished with seats and couches.[13d]

The classic Indian medical authorities took a balanced view of drinking. Moderation was counselled, since alcohol increases the mental principle pitta, while diminishing both the physical and vitality principles, kapha and vata.[17Ac] A light wine mixed with mango juice could be enjoyed 'together with friends'.[77a] Wine was to be particularly avoided in summer and the rainy season, when the digestive fire was at its lowest ebb, but could be consumed in winter and spring.[24] Throughout history, though the consumption of liquor must have been prevalent, visitors to India remark on the sobriety of the general population.[118] Thus in AD 947 Al-Masudi wrote: 'The Indians abstain from taking wine, and censure those who consume it; not because their religion forbids it, but in the dread of its clouding their reason and depriving them of its powers.'[117]

In colonial times, Portuguese monks in Goa developed a distilled liquor with a distinctive flavour from the cashew 'fruit', called feni. The British administration noted the widespread production of toddy and arrack all over India. Being excisable items, some measure of control was attempted, especially in the Bengal Presidency.[57a,119a] Rice wine was also made and distilled,[57b] as was that from mahua flowers;[2h] the latter was organized by Parsi distillers, working under British control, in the island of Uran off Bombay.[57b] The first distillery set up in India was in 1805 near Kanpur, and thirty years later a unit (still in production today) was installed in Rosa near Kanpur.[120] By 1901 there were fourteen registered distillers, and at Independence in 1947 about forty, producing annually 10,000 LP gallons of potable spirit.[84b]

bhang It is doubtful whether the bhanga of the *Atharvaveda* is indeed *Cannabis sativa*, or refers to the Indian sunn-hemp, the plants of which look alike.[2w] The narcotic properties of bhang seem to have been realized only as late as in the tenth century,[2w] and in time three forms of use developed. Bhang refers to the dried leaves and flowering shoot, gānja to the dried flowering tops of female plants, and charas to the resinous exudate or an extract. Visitors to India have remarked on its widespread use. Linschoten (*c.* AD 1580) noted that the poor chewed bhang with nutmeg and mace (which disorder the mind), and the rich with cloves, camphor, amber, musk and even opium.[130b]

birinj Persian for rice, from which is derived the name of the rice-meat dish biriyāni. Birinj itself comes from the old Persian term virinzi for rice, which also gave rise to the vrīhi of Sanskrit. The rice-milk sweet concoction was called kheer-birinj by the early Muslim Indian nobility.[53]

biriyāni A spicy dish of meat cooked with rice, referred to by this term in the thirteenth century.[53] Numerous variations occur all over India. One is the kacchi-biriyāni of Hyderabad, with the meat very soft and almost disintegrating into the rice, and irregular patches of yellow saffron colouring. A palāo (q.v.) is very similar, and the word itself is of older usage in India. Recipes in the *Ain-i-Akbari*[28] (AD 1590) show little distinction between a biriyāni and a palāo.

biscuit This is not a traditional Indian food item, though even in *c.* AD 1660 Francois Bernier does mention 'sweet biscuits flavoured with anise'.[29b] Biscuits were first imported into India from Britain in about 1847, and imports touched a peak figure of about 2200 tonnes annually before the Second World War.[119b] Manufacture in India started in *c.* AD 1885, and by Independence about 10,000 tonnes of several varieties were being produced.[119b]

The traditional nankhatai of western India resembles the biscuit.

bittergourd This is first mentioned as karivrnta, and later as karavella (Hindi karēla) in early Jain literature (*c.* 400 BC).[31e] Kannada literature of the sixteenth century refers to the practice of debittering the bittergourd by steeping it in salt water and washing it.[67b] Where a bitter-tasting food item is needed, as in the shukto of Bengal, bittergourd serves admirably. Rings of it deep-fried yield a crunchy relish, especially if first steeped in salt and dried. The vegetable can be cleaned out, stuffed with vegetables or minced meat, tied with string, and fried.

black gram *See* urad.

boar A fierce, tusked denizen of India's forests, hunting of the wild boar using dogs and nets is described in the Tamil Sangam literature of between the third and sixth centuries AD.[61] It is valued as a strong meat. In an early work from Assam of between the sixth and eigth centuries AD,[115] boar meat is specially recommended. A wild boar was sent by Jahangir to Sir Thomas Roe with a polite request that the tusks be returned.[80A] The Syrians of Kerala and the Kodavas of Coorg cook it with heavy spices to mask the strong flavour, or pickle it in oil, or smoke-dry it for later currying or roasting. The British considered wild boar fine eating, but were chary of the domestic pig unless farm- or home-raised.[336]

bottlegourd A climbing plant that originated in Africa, but has been in India for so long that it is described (as alabu) even in the *Rigveda*.[6a] Now called lauki, *Lagenaria siceraria* is widely used as a soft vegetable. The hard-dried shells find use as water bottles, blowing horns

and musical wind instruments, e.g. those used by snake charmers.[99a]

Bower manuscript Discovered early in the twentieth century in a monastery, the text of the so-called Bower manuscript (after its discoverer) is essentially a copy of the *Charaka Samhitā* (q.v.), with some extraneous material. It was probably compiled by four Buddhist monks from Kashmir who had migrated to Kuchar. A major topic in the work relates to the medicinal value of lāsuna (garlic).[17Ad,121]

brahman, brahmin First of the four castes, the others being the kshatriya (warrior), vaishya (trader) and shudra (menial). To start with, the brahmins were mostly priests but later also took to other scholarly professions. Their chief duties earlier were to study and teach the Vedas and perform religious ceremonies. Ideally, four stages were expected in the life of a brahmin, that of a brahmachāri (celibate student), grhasthya (householder), vanaprastha (forest dweller) and sannyāsin (self-denying religious mendicant). Xuan Zang, in the seventh century AD, comments that the brahmins were clean-handed, unostentatious, simple, very frugal, 'pure of themselves and not from compulsion'.[103b] Most brahmins are vegetarian, with exceptions in Bengal, Kashmir, and the Gowda-Saraswath community of Karnataka (*see* vegetarianism; meat consumption).

brandy Not an indigenous liquor, but extensively imported all throughout the colonial period for either direct use or blending, e.g. in a punch (q.v.).[122] By 1900 it was being distilled in Shimla and Amritsar, and flavoured with imported essences,[84b] although an excellent Indian cherry brandy is also mentioned.[31f] By Independence, Indian production of brandy was 300,000 LP gallons, with imports alongside of 227,000 LP gallons.[84b]

bread Indigenous bread implies products like the rōti, chapāthi, parāta, naan, tandoori, and so on (*see* rōti). Western-style loaf bread, raised using yeast, was baked in the home[123] almost all through the colonial period, and it was only around the 1920s that bread was made commercially; this was by hand, and in very unhygienic surroundings. In 1937 the Bengal Presidency counted 470 very small bakeries, while the United Provinces had 134 bakeries, 'mostly of the teashop variety', in twenty large towns.[124] In 1937 machine-made bread loaves were noted in 'one or two concerns in Calcutta and Bombay';[125] large hygienic bakeries were set up only after Independence.[119b]

breadfruit *Artocarpus atilis*, native to the South Pacific islands, was introduced into India perhaps in colonial times,[2i, 99c] and is used as a vegetable. It is far less popular than the ancient related jackfruit (q.v.), *A. heterophyllus*.

brinjal The Sanskrit words vrntaka and vartaka may be of earlier Munda origin, and the brinjal (Hindi baingan, Portuguese bringella, English eggplant or aubergine) may have originated from a wild ancestor in

India by human selection for reduced spininess and bitterness, bigger fruit size and annual habit.[7h] The brinjal comes in a variety of shapes and sizes (small and globular, large and long) and colours (purple, green, yellowish, white, striped) and is found abundantly all over India. The many ways in which it can be cooked are well illustrated in the historical literature of Kannada.[67b] Thus the brinjal could be seasoned with ghee, salt, mēthi, urad and cream before boiling; or coated with ghee, roasted on live coals and mashed to a bāji (bartha); or cut into small pieces and cooked with jaggery. Yet again, the brinjal could be fried along with rice grits and chopped onions, wrapped in a turmeric leaf, and steamed to give a pudē, a generic dish.[51] An uncooked dish consisted of a brinjal mash with coconut shreds and curry leaves, flavoured with asafoetida and cardamom.[67b] In Bengal, wedges of brinjal are spiced and lightly fried, and it can form part of a bitter shukto dish. Brinjals stuffed with their own mashed and spiced contents, or with spiced minced meat (a dish called pūrabhattaka in the *Mānasollāsa* of AD 1130)[49] and then shallow-fried, are delicacies everywhere. Tamarind-spiced rice cooked with brinjal is termed vāngi-bāth in the Tamil country.

broad bean *Vicia faba* is probably of Mediterranean origin, with a 6250 BC find in Jericho.[7i] It seems to have first been cultivated and acclimatized on the Himalayan heights before it was introduced in the plains for use as a vegetable that has the Hindi name bākla.[2j]

Buddhist food and literature Canonical Buddhist literature consists essentially of three *Pitakas* written in a dialect of Sanskrit, Pali, and are termed *Vinaya, Sutta* and *Abhidamma*. Also relevant are the *Dhammapada*, 400 verses expounding Buddhist ethics, and the 500-odd *Jātaka* tales relating to Buddha's previous incarnations as a man, animal and tree.[126] A rough nodal date for these works is 400 BC.

Frequently, food materials find mention for the first time in writing in these works.[6c] Examples by way of pulses are the chanaka (chickpea, Bengal gram), the small marbled green pea kalāya, and the cowpea or lōbia, nishpava. The *Mahāvagga* of the *Vinaya Pitaka* (along with the roughly contemporary Sanskrit *Dharmasūtras*) refer to hingu (asafoetida), and the use of the black mustard seed as a condiment. Several common fruits first find mention in Buddhist literature, like the coconut, banana, jackfruit, palm, tinduka (*Diospyros melanoxylon*), grapes, phālsa, karamoda and several citrus species.[6c] In the Buddhist *Jātaka* tales there occurs the first reference to sugarcane crushing in a yantra (machine), and there are several references to guilds (shreni) of artisans of various kinds.[126,127]

Buddha's own views on food are stated to be recorded in the *Lankāvatara Sūtra*:[25A] 'I enjoin the taking of food made out of rice, barley,

wheat, mudga, māsha, masūra and other grains, ghee, oil of sesamum, honey, molasses, sugar, fish, eggs and others, which are full of soul qualities but devoid of faults; they were consumed by the Āryas and rishis of yore.' On many occasions he counselled moderation in order to guard 'the doors of the organs of sensation', meaning lack of self-control, or enjoyment of the pleasures of the table.[128] Monks were advised to eat solid foods only between sunrise and noon, and nothing between noon and sunrise; this would subdue passions and lead to spiritual strength. Anything that was offered, whether coarse food or no food, should be accepted without cavil.[128] Among the eight essential items permitted to a Buddhist monk were a begging bowl and a water-strainer.

The desire not to distress the giver of food, and to avoid the extreme austerities of orthodox brahmins, led the Buddha to turn down suggestions that meat and fish consumption be prohibited for Buddhist monks.[30] However the flesh eaten had to be 'blameless' in three ways: the killing should not have been seen or heard or suspected by the monk (adrastam, asrutam, aparivirtakam), it being the responsibility of the person giving the food as alms to ensure this. The *Mahāyana Sūtras*, in particular the *Lankāvatara*, stress total ahimsā (q.v.). In the third century AD, the Buddhist Emperor Ashoka practised and preached non-killing; this is enjoined in his very first edict on the Girnar

stones in Gujarat: 'No living beings may be slaughtered for sacrifice.' Indian Buddhists, though few in number, are vegetarians, but the Hinayana monks of China and southeast Asia, and the Tantric Buddhists of Tibet, have generally consumed flesh foods. Even with regard to liquor, wine was permitted to Buddhist monks when they were ill.

Eight drinks were permitted to Buddhists: the juices of the ripe mango, jamoon, banana, grape, phālsa, coconut and edible water-lily, and diluted honey.[6c] These could be consumed after the last (noon) meal of the day. For drinking, pure rainwater was recommended. Water meant for drinking had to be 'clear, cool, shining like silver, health-giving and with the fragrance of the lotus'. Food was viewed as of two types. Panchabhōjanyas were soft and wet foods, such as rice, boiled barley, peas and baked cakes, that could be swallowed, while panchakhādinyas were hard and solid foods that needed chewing, like roots, stalks, leaves and fruit.

Two Buddhist Chinese pilgrims who visited India about fifty years apart left accounts of the meals served to them at the great Nalanda monastery. Shaman Hwui Lui, the disciple of Xuan Zang (AD 629–645) records:

> Every day he received 120 jambhiras (*Citrus jambhiri* fruits), 20 areca nuts, 20 nutmegs, a tael (*c.* 30 grams) of camphor, and a shang measure (perhaps about 6 kg) of mahāshāli rice. This rice is as large as the black bean

(urad), and when cooked is aromatic and shining, like no other rice at all. It grows only in Magadha, and nowhere else. It is offered only to the king, or to religious persons of great distinction, hence its name mahāshāli, or in Chinese kung-ja-tin-mai (rice offered to the great householder). He was also supplied every month with three tou (3 kg?) of oil, and as regards milk and butter he took as much every day as he needed.[103d]

I Ching (AD 671–695) says that on arrival guests were offered one of the eight syrups prescribed by the Buddha.[6g] At a meal, monks were first served with two pieces of ginger with some salt, and then boiled rice, on which was poured a thin extract of beans, and hot ghee; these were mixed with the fingers, after which cakes, fruit, ghee and sugar were served. Toothpicks were provided after the meal, and pure water for rinsing the mouth, and sometimes a perfumed paste with which to clean the hands. The beverages that accompanied the meal were cold or warm water, whey, buttermilk or fermented sour rice gruel (kānjika). Betel leaves with fragrant spices were served at the end to help digestion, remove phlegm and make the mouth fragrant.[6g]

In contrast to the prohibitions on monks, the food of ordinary Indian Buddhists resembled that of their brahmin contemporaries. Indeed Buddhist doctors followed ayurvedic dietary principles, as did Jivaka, who was Buddha's personal physician. A later Buddhist doctor of the seventh century AD, Vaghbhata, wrote a standard ayurvedic compendium, the *Ashtāngahrdaya Samhitā*, which deals extensively with the choice of food in relation to the season.[77] The *Rasaratnākara* of Nagarjuna, a Buddhist doctor-monk of south India of about the same period, enlarged classical ayurvedic concepts with his own pioneering contributions on the use of metals, like black sulphide of mercury, for rejuvenation.[17d] Buddhism has few followers in India today, but has wide adherence in the far East.

buffalo Referred to as buff, buffe and buffle by the early Europeans in India, the Indian buffalo (from the Portuguese bufalo) was wrongly also called the water buffalo, presumably from its penchant for wallowing to escape the heat.[1k] *Bos bubalus* is derived from a wild species of east Bengali origin. It is known to have played an important part in the cultivation of the swampy Gangetic plain by the early Aryans.[79a] While only a beast of burden in southeast Asia, in India it has also been a source of both milk and, less so, of meat (q.v. beef).

Buffalo milk is far richer in fat than that of the Indian cow (8 and 4.5 per cent respectively). In south India especially it has long served admirably for preparing domestic curd and butter, and more recently to give body to the strong coffee brew. In the barter system of early south India, a herdsman's wife, in exchange for ghee, 'accepts, not a piece of fine gold, but instead a she-buffalo, a cow,

or a black heifer, worth its value'.[83] The *Nilamata Purāna* (sixth century AD) mentions its use in Kashmir,[114] and Ibn Battuta in the fourteenth century AD relished a porridge of dehusked shama grains mixed with buffalo milk.[8Bb] Even today the Todas of the Nilgiri hills in south India breed buffaloes ritually, centred around dairy temples.[303,304a]

Buffalo meat was declared edible in the *Brhat Samhitā*[38] and must have been a food in regular use. As late as in the eleventh century AD Al-Biruni observed that the killing of the buffalo by brahmins was allowed.[80] Another fourteenth-century traveller noted that in certain dry tracts adjacent to the Sindh desert, fish and buffalo meat were plentifully available.[54] In about AD 1600, Edward Terry commented that buffalo flesh 'was like beef, but not so wholesome'.[82]

bullock cart Excavations at Harappa unearthed a beautiful clay toy model of a bullock cart,[8Ac] almost identical with those seen even today. The wheels consisted of solid discs of wood or stone, and it was only in AD 1835 that a revenue survey officer, Lieutenant Gaisford, invented the much lighter and more manoeuvrable radial spoked wheel of wood which revolutionized Indian agricultural operations.[111b] The first factory for the production of spoked wheels was set up by a Parsi entrepreneur in the Satara district of the Bombay Presidency.[219b]

butchers From early Vedic days, the marketplace had separate stalls for the vending of the meat of various animals, such as gogataka for cattle, arabika for sheep, shukarika for swine, nāgarika for deer, shakuntika for fowl and giddabuddaka for alligator and tortoise.[14c] The abattoir for beef was called garaghatanam and for swine shukarasam.[14c] With the advent of the Muslims, it became necessary to ensure that the prescribed ritual procedure of halāl was followed. In this an animal is slaughtered by cutting its jugular vein, or by piercing the hollow of the throat, using a sharpened knife, and allowing the blood to flow, while uttering the name of Allah. Most butchers in India today are Muslim.

butter Being a perishable commodity, butter is much less used in India than is its clarified product ghee, which has always been the cooking and table medium of choice. A pat of fresh butter sometimes accompanies certain items at the table, like sarson-ka-saag, or a masāla-dosa, or the steamed jackfruit relish of Kodagu, kōale-puttu. The ancient Vedic sacrifices had a special vessel, sapirdhana, to hold butter,[64,65] and it was one of the five cow-based components of panchagavya (q.v.), the supreme purificatory concoction. Freshly churned butter in Sanskrit is navaneetha; this was a favourite with the god Krishna, who as a child annoyed his mother by stealing it right out of her churning pot.

Various devices were in use all over the country to churn diluted curds into butter. A common device, sculpted in the thirteenth-century

Khajuraho temples, consists of a long stick, with a corrugated device fixed at the bottom which was pulled to and fro by women using a rope wound round the stick.[129] The Sangam Tamil literature (q.v.) of south India, between the third and sixth centuries AD, vividly describes the making and vending of vennai (butter). The sound of the churning is poetically compared to the 'growl of a tiger'.[83] After churning, the cowherd's wife sets off to sell butter, 'placing the pot, with its speckled mouth on her head, supported by a circlet of flowers'.[83]

Vegetables in south India are described as being cooked in fresh cow's butter.[83] However, references to cooking in butter by foreign visitors to India are suspect; more likely this was in ghee, a commodity unfamiliar to strangers.

Early colonialists made butter at home from cream, often separated from the milk of their own cows, by placing it 'in very large open-mouthed bottles, which were closely stoppered and then thumped up and down on the ground'.[130a] Fresh butter is an item mentioned at an afternoon meal in Calcutta in 1780 by Mrs Eliza Fay,[131] and about a century later Edward Lear (of limerick fame) had bread and butter for breakfast.[132] By 1905, there were 48 Military Dairy Farms scattered all over India, and their surplus production of butter and other western-style dairy products could be bought by civilians.[2k] In 1947, major Military Dairy Farms were operating in Quetta, Rawalpindi, Pune, Pimpri, Ki kee, Jabalpur and Secunderabad.[133] The first distribution on a national scale was by the Polson Model Dairy in Anand, Gujarat, which packed salted butter in tins or waxed paper cartons. In 1947 some 8000 tonnes of this kind of butter was produced.[84c]

buttermilk *See* beverages.

butyron Term used by contemporary Italian writers for the ghee exported in leather skin bags from south India to Rome in the first two centuries of the Christian era.[86b]

Byculla soufflé This concoction of the Byculla Club in Bombay is said to embody 'the epicurean standards of the Rāj at its best'.[389] Four liqueurs (kummel, green chartreuse, orange curacao and benedictine) were stirred into a warm gelatine solution. This was folded gently into thick, beaten-up double cream, along with some eggs whisked with a little sugar, and the whole was served in bowls topped with macaroon crumbs.[389]

C

cabbage *See* cauliflower.

cakes Western baked sweet confections in India date only from colonial times, but the term is rather loosely applied in translations of historical literature into English, to roasted, rather than baked, items. Thus the Vedic sacrifice employed two items, the ashtaka and the purodāsha, that were roasted on potsherds and are referred to as cakes.

Even the steamed idli would be described loosely as a rice cake.

calamondin The fruit of *Citrus madurensis*, called hazāra, a local, unclassified Indian citrus variety. Others are the Rangpur lime (*C. limoni*) and the Guntur sour orange, *C. maderasapatna*. Not all authorities give these citrus varieties even a species ranking.

camphor The karpūra of Sanskrit may be an indigenous term, or a derivation from the Javanese kapūr, or vice versa.[2l] In AD 1585 Ralph Fitch accurately noted that though camphor was much used in India, it came from China, while the best type was from the great island of Borneo.[134] This seems to have always been so, since the Indian tree *Cinnamomum camphorum*, from the exudate of which camphor is steam-distilled or sublimed, is a far poorer source than the *Dryobalanops aromatica* of Indonesia.[2l] Yet the use of camphor in India, mostly in religious rituals, but also in food items, is fairly old. The Indian medical authorities knew of both types of camphor, the pakva type involving heating and therefore probably indigenous, and the apakva type, natural and perhaps imported.[2l] The export of camphor from south India in the early Christian era is mentioned,[135] but these could have been re-export.

With regard to food, the use of camphor to flavour pickles in the Karnataka area is noted in AD 1130,[51] and in a curd-rice dish in Gujarat in AD 1520.[136] Wealthy people used it as an ingredient in a betel quid; it was used with four other expensive spices by the royalty as a panchasugandha;[49] by the gentry of Kerala in AD 1563 (Garcia da Orta);[45] and in the *Lingapurāna* in Kannada in AD 1594.[67b] In AD 1598 Linschoten noted that the wealthy chewed bhang (opium) along with aromatic spices that included camphor.[130b] Camphor was an item served daily in the seventh century AD to Xuan Zang while resident in the Nalanda Buddhist monastery,[103d] perhaps to flavour his betel quid or drinking water, or for use as incense.

caper The sour bud and fruit of *Capparis decidua*, mentioned in the *Rigveda* as karira,[6a,6j] is eaten pickled, both in green and ripe form.[2m] Caper sauce is a popular accompaniment to baked fish in the West, a practice which continued in colonial India.

capsicum The comparatively 'sweet' bell-pepper or capsicum is one of many types of the chilli (q.v.) family, *Capsicum annuum*, that came to India from Mexico following the opening up of sea-routes from Europe to America and India. It is cooked as a vegetable.

caraway The shājira (*Carum carvi*) is not a traditional Indian product, being native to the Middle East and mostly imported.[2n] Two Indian seeds resemble it somewhat. These are *Trachyspermum ammi* (ajwain, omum, whose main constituent is thymol rather than the carvone of caraway) and *T. roxburghianum*

(ajmud, rādhuni or celery seed, which is one component of the Bengali spice mixture pānchphorōn).[99c]

cardamom This spice is of southern origin, with cognizance as ela in the *Arthashāstra* (*c.* 350 BC).[6a] A substitute for *Elettaria cardamomum* is the large Bengal cardamom, badi-elaichi, or dāruharidra in Sanskrit, from *Ammomum aromaticum*, which is raised in Bengal and Assam.[7j] The distinction is made even in the *Manusmriti*, and clearly spelled out with correct Sanskrit and Sri Lankan names by Garcia da Orta in AD 1563.[130c] Apart from the large Bengal cardamom, three cardamom types are at present recognized in the trade: the inferior Sri Lankan, the palegreen and more delicate Mysore, and the larger and more robust Alleppey green (now grown in Kerala, but originally derived from Mysore).[31g]

Cardamom flavouring is popular in a wide range of dishes. It is used in the samyāva of Charaka, a confection of wheat flour, milk, ghee and sugar,[6f] and the kasara of the *Mānasollāsa*,[49] which employs the same ingredients. A curd-rice flavoured with several spices including the cardamom features in a work of the eighteenth century AD from Maharashtra,[52] and an unfried brinjal bāji in early Karnataka was flavoured with camphor and cardamom.[67b] Fruit juice beverages, panaka, and some using whey and sugar, are mentioned as being cardamom-flavoured in the *Mānasollāsa*.[49] Kashmiri tea brewed in samovars is frequently flavoured with it. As is to be expected, there is mention of the cardamom in early south Indian literature.[69b] As a component of rather fancy betel quids, the cardamom finds a place in the panchasugandha-thāmbūla of the *Mānasollāsa*,[49] and in the kulapivīda, made with 12–15 betel leaves, in eighteenth-century Maharashtra.[52]

carrot This is a very old vegetable in India, called in Sanskrit garjara (Hindi gājar) and shikamula. These constitute the *desi* carrots of today, globular in shape and greenish in colour (due to the presence of anthocyanins). George Watt remarks that the carrot 'seems to have been eaten in India when in Europe it was scarcely more than a wild plant',[2o] and in the seventeenth century AD John Fryer remarks on the 'good carrots of the Deccan'.[20b] The primary centre of domestication is probably Afghanistan, and when the globular type moved westwards around the tenth century AD, it was transformed by breeding into the long, orange type, notably the horn carrots developed in Holland in the eighteenth century.[2o] European carrots were first acclimatized in Shimla;[336] both types are now raised in India, the *desi* being preferred for making traditional carrot halwā. An underground tuber, the carrot is not a food item permitted to Jain monks.[137,138a]

cashew A native of southeast Brazil,

the cashew must have been an early transfer, since even in AD 1578 Acosta describes the 'caiu . . . found in the gardens at the city of Santa Cruz in the kingdom of Cochin'.[1n] The so-called cashew 'fruit' is really the swollen stalk or peduncle, from which Jesuit priests in Goa developed the strong distilled drink feni, with a distinctive flavour. The kidney shaped nut hangs below this 'fruit', as is aptly denoted by the Tamil word mundiri for it. In Kerala the nut is called parangi-māv or -āndi (meaning foreign stone), and the fruit is called gomanga, perhaps because it came to Kerala from Goa.[45b] The name cāju, which the Portuguese brought to India and which is still used in Indian languages, derives from the term acaju of the Tepi tribe of Brazil,[139] which was later anglicized to cashew.

cassava *See* tapioca.

cassia *See* tejpat.

cattle In Baluchistan, where cattle were first domesticated in *c.* 5000 BC from the primitive form *Bos primigenus*, excavations show only the hump-backed form, *Bos indicus*, now called the zebu or Brahminy bull (perhaps from its association with Lord Shiva).[8Ad] The term zebu is of uncertain origin.[1n] Indus Valley seals clearly depict both the humped zebu and the urus with forward-pointing horns. The buffalo (q.v.) appears to have been domesticated in India, while the domestication of the goat and sheep preceded that of cattle in the same area.[8Ac] All these were well-known species in the Indus Valley. That cattle were beasts of burden then is certain from early cave paintings (q.v.),[141] and from numerous clay representations of bullock carts and draught animals.[8Af] In later Aryan times cattle came to be objects of near-veneration (*see* beef), and even the occupation of tending them was considered highly honourable. Fine Indian breeds were sent back to Greece by Alexander.[100b]

In colonial times, herds of some Indian dairy breeds were maintained in dairy farms. Pure Red Sindhis were maintained at the Allahabad Agriculture Institute, the Government Cattle Farm, Hosur and the Imperial Dairy Research Institute, Bangalore, and pure Sahiwals in Lyallpur, Ferozepur and Pusa.[119c] Other fine breeds are the Deoni, Gir, Hariana, Kankrej (this is the dewlapped animal that figures on an Indus Valley seal), Malvi, Sahiwal, Ongole and Tharparkar.[145a] High-yielding buffaloes are the Nili, Surti, Nagpuri, Jaffarbadi, Mehsana and Murrah (which was kept in many dairy farms). High-yielding goat breeds are the Jamna Pari and Bar Bari. The White Revolution ushered in during the 1950s brought about quick yield improvement by crossing Indian animals with very high-yielding foreign breeds like the Jersey, Holstein and Frieisian, mostly using artificial insemination techniques.

cauldrons Even though the potter's wheel was known, very large cauldrons for ritual Vedic sacrifices

were fashioned each time from clay by hand to very rigid specifications, and baked afresh (*see* ashvamēdha). Among such huge cooking vessels were the general-purpose shrāpana; the ukha, a square pot for cooking flesh; the wide-mouthed mahāvīra for heating milk and ghee; the gharma for boiling milk; and the kumbha for boiling rice.[65,66] The last-mentioned later became a standard measure of volume.

cauliflower The phool-gōbhi (cauliflower), like the gōbhi (cabbage) and ganth-gōbhi (knol-khol), all varieties of *Brassica oleracea*, were introductions into India after *c.* AD 1850 for use by colonials, but are now extensively cultivated for general use as vegetables, with an anti-diabetic reputation.

cave paintings Though not going back 20–25 thousand years, like those at Altamira (Spain) or Lascaux (France), cave paintings are found in India in Singhanpura near Raigarh, Benekar near Hampi, and notably in Bhimbetka near Bhopal, which date from about 8000 to 3000 BC.[140, 141] Animals are shown being felled with lances, and bows and arrows, or captured with traps made of reeds and ropes, or in nets; fish were speared. The animals being hunted include bison, guar, peacock, tiger and rhinoceros, besides the ostrich and giraffe, which are both now extinct in India. Women are shown gathering fruit, with long baskets hanging on their backs (rather as in tea plantations now). Women are frequently shown on their knees, or standing up, kneading balls of dough, sometimes in a receptacle shaped like a shallow letter 'w' (is this a gourd section?). Dancers with elaborate masks and head-dresses suggest the emulation of birds and beasts, perhaps with the intention of domination. As the metal age draws in around 3000 BC, the drawings change to animal processions, bullock carts with yoked oxen, a humped bull with lyre-shaped horns, cows, fowl and dogs, and even a man astride a horse. Thus man in the neighbourhood is clearly shown as moving from a nomadic to a more settled existence over a 5000-year period.

chakki The term chakki for grinding stones is derived from the Sanskrit chakra (wheel, to turn) by way of the dialectical chakka. The chakki takes the form of circular stones held slightly apart, either vertically or horizontally, for dehusking or grinding wheat, rice and pulses. Animal and water power used for centuries was later replaced by oil engines and electricity. A stout circular stone with a central hole found both at Mohenjodaro and Lothal was initially identified as part of a chakki, but is more likely to be either a pulley placed atop a well, or an edge-runner working in a trough for mixing or grinding. The double chakki in common domestic use, with an upright peg on the periphery, appears only around 200 BC in association with Roman artefacts like amphorae (q.v), and is perhaps not of indigenous origin[142](*see also* utensils).

chana *See* Bengal gram.

chapāthi A thin 20-cm circlet of wheat dough, rolled out after thorough kneading and some resting, and then dry-roasted on a slightly concave iron griddle, the thavā. It can then be puffed out by brief contact with live coals to yield a phulka. Both are major ways in which wheat is consumed in India. Cave paintings (q.v.) do show balls of dough being made, and in Harappan sites, flat metal and clay plates that could be thavās have been found in plenty, so the chapāthi could go back a long way (*see also* rōti; wheat dishes).

Charaka Samhitā A compendium of the principles and practice of the Indian medical science of life or ayurveda (q.v.), which may well represent a redaction of knowledge as it existed around the fifth century AD.[17b, 24] The common noun charaka has a connotation of roving, and Charaka may have been one person, or several persons who adopted a descriptive name, or even a school or tradition,[143] all building over centuries on an ancient existing text. The *Charaka Samhitā* consists of eight major sections, made up of 120 chapters. The fundamentals (*Sūtra-sthana*) are covered in 30 chapters, and therapeutic treatments (*Chikitsa*) occupy another 30 chapters. The former section describes basic concepts, physiological processes, and food and drink groups, while the latter is a systematic approach to how a doctor should diagnose an ailment and prescribe integrated remedies, of which diet is foremost. Drugs are divided accordingly into their pharmacological action into 50 groups, and their action on the body is interpreted on a rational basis based on actual observation. There are details of 341 medicinal plants and their products, 177 drugs of animal origin and 64 drugs of mineral origin. The science of dietetics is āhāratattva, and the effects of food on bodily health are viewed in relation to temperament, physiological effect, cooking and season. The *Charaka Samhitā* represents a 'momentous step forward from magico-religious therapeutics to rational therapeutics with perceptible results'.[143]

All food items are divided into six vargas or types, and in each class the most and least beneficial items are noted. There are lists of compatible combinations, as well as of foods considered particularly unwholesome in particular seasons. Thus ghee for cooking is recommended only in autumn, in spring animal fats are preferable and in the rainy season vegetable oils. Meat is regarded as a nourishing food, prescribed for use by the weak, the convalescent, those engaged in hard physical work, and those addicted to debilitating pleasures; deer meat (jangalavāsa) and its sauce are considered particularly nourishing. Eight varieties of honey are commented upon as food, and five types of salt. A scientific synopsis of the *Charaka Samhitā* has been made[24] (*see also* ayurveda).

chāval Hindi for rice, and a word believed to have arisen from chomla, itself derived from the Munda term chom, meaning to eat.[144]

cheese Even early Vedic literature contains a reference to dadhanwat, which simply means an abundance of curds.[144A] This is stated to be of two types—with and without pores[6a]— which may simply denote undrained and drained curd (paneer, q.v.),[144A] rather than cheese, as has been suggested.[6a] The latter has never become a popular product in India, though a few cheeses from buffalo milk were known locally. These are termed Dacca, Bandal and Surti, the first two being smoked products and the last a salted one.[145b] Cheeses were imported throughout the colonial period, and perhaps this, rather than any local product, is the 'very good cheese' that was served at a meal in Calcutta in AD 1780.[131]

cherry Wild cherries, called paddam or phaya, are still found along the length of the Himalayas. They are not eaten, but the stones are made into necklaces and rosaries,[99] and the fruit makes an excellent cherry brandy.[31f] The sweet cherry is of Chinese origin; it was imported into India until its cultivation in Kashmir, and its improvement by grafting, were taken in hand by the Mughals.[27,41,146]

chhāna Acidification of milk, either deliberately or through spoilage, yields chhāna as a precipitate. However, an Aryan taboo on the deliberate 'breaking' of milk[95] meant that this was not a favoured food item. When the Portuguese who had settled in Calcutta in the early nineteenth century needed cottage cheese, which is similarly made, Bengali sweetmeat makers found themselves with a new raw material, chhāna, on which they could lavish their creative energies, to produce a profusion of sweets (*see* Bengali sweets). Mild precipitation of milk using whey from a previous run yielded a soft but perishable chhāna, while the use of lime juice yielded a gritty one that set to a hard, grainy, long-lasting chhāna. Even the fried jilēbi in Bengal can be made from a chhāna-khoa mix, and is called chhānar-jilipi.[91]

chicken The Indian jungle fowl, *Gallus gallus*, is the acknowledged progenitor of domestic fowls the world over. It is native to a wide region all the way from Kashmir to Cambodia, with perhaps the centre of origin in the Malaysian land mass.[2p] The bird may have been domesticated not as a source of meat, but for purposes of divination which entailed an examination of the entrails or the perforations in the thigh bones (practices that still prevail in parts of southeast Asia),[147] besides of course that of cock-fighting between birds of spirit. Moreover, the fowl is a scavenger, and perhaps for this reason, the domestic fowl frequently finds a place in lists of foods prohibited for brahmins. For example, the *Manusmriti* includes in this category the domestic pig and the domestic fowl, and in AD 916 the visitor Al-Masudi records prohibi-

tion against 'cows, tame poultry, and all kinds of eggs among the people'.[118] In the list of Akbar's permitted meats in the *Ain-i-Akbari*, which includes the goose, duck, heron and bustard, the fowl is conspicuously missing.[28]

Other travellers however note the consumption of chicken as food. Chicken kabāb, palāo with murg-masallam, and roasted fowl (dōjāj) all figure in meals served at the Delhi Sultanate court.[53] In Vijayanagar, Domingo Paes remarks on 'poultry fowls, remarkably cheap',[21a] and in AD 1780 Mrs Eliza Fay serves 'roast fowl' for lunch in Calcutta.[131] Since good beef was scarce or unavailable, the domestic fowl was indeed the great colonial standby, whether at home or when travelling.[336]

The people of pre-Aryan south India, whose life-styles are reflected in Sangam literature, had no reservations about eating the karugu or kozhi.[72]

The domestic chicken must have made its way round the world at some early date, for the early Europeans in Melanesia found the chicken there. Magellan, the first European to reach Brazil in AD 1519, describes how he laid in a supply of chickens for food on board,[148] and some years later Henry Cabot did the same.

Few pure breeds of chicken were developed in India.[31h] The aseel, with valiant fighting qualities, has a scantily feathered back. The golden Chittagong has very scarce plumage at the breast bone. The Ghagus comes in many colours and has a typical baggy neck.[31h] The large size of all these birds is especially commented upon by several early European writers: 'Some of them are so large that they are often mistaken by strangers for turkeys . . . they breed them now about Surat in abundance.'[2q] In AD 1668, Bernier described 'a small hen, delicate and tender, which I call Ethiopian, the skin being quite black'; other writers have called these birds Sooty or Nigger fowls.[2q] Though this breed seems largely to have vanished, a recent news item describes such a kālimāsi in the Jhabua district of Madhya Pradesh, which was renamed kadaknath by a local official.[149]

chickpea *See* Bengal gram.

chidva One of the names in Sanskrit for parched and beaten rice is chipita, and chidva (also pronounced chivda, chevda) are spicy, crunchy snack items based on it.[150] These may also carry roasted groundnuts, raisins, coconut shreds and the like.

chikki A sweet confection eaten as a snack, in which crunchy materials like roasted groundnuts, sesame seeds, cashewnuts, puffed rice and the like are kneaded with a hot, viscous solution of jaggery or sometimes sugar, into balls or slabs that set hard.

chilgoza *See* nuts.

chilli There is no mention whatsoever of the chilli in Indian literature before the sixteenth century AD. In AD 1563, the meticulous book of Garcia da

Orta, the doctor-botanist, does not record it, and in AD 1590, not a single recipe of the fifty or more given in the *Ain-i-Akbari*[28] uses anything other than pepper to achieve pungency. Indeed it is apparent that in many Indian languages, the word for the green chilli is simply an extension of the word for pepper. Thus Hindi has kāli-mirch and harimirch, Tamil milagu and milagāi (milagu-kāyi); and Kannada harimenasu and menasinkāyi.

In course of time, when pepper reached the New World, the compliment was reversed. In 1604, Acosta quotes Grimston on Indian pepper: 'In the language of Cuzco it is called Vchu, and in that of Mexico Chili', and in 1631 Bontius refers to the pepper as Piper e Chile.[1o] The name axi (x is pronounced h in South America) for the chilli is mentioned even in AD 1494 by Chanca, the physician who accompanied Columbus on his second voyage. In AD 1750 Rumphius notes that it is written 'axi or achi, hence comes the Indian name āchār for pickles'.[2r] This must be a coincidence, since āchār (q.v.) is usually granted a Persian or Arabic origin.

The chilli must have entered India soon after the voyages of Columbus and Vasco da Gama. The great south Indian composer Purandaradasa (AD 1480–1564) sang of the chilli: 'I saw you green, then turning redder as you ripened, nice to look at and tasty in a dish, but too hot if an excess is used. Saviour of the poor, enhancer of good food, even to think of (the deity) Pānduranga Vittala is difficult.'[151a] A Sanskrit work written in AD 1650 in Maharashtra, the *Bhōjana-Kutūhala* of Raghunatha, refers to the chilli as mirasanā.[151A] All forms of the chilli, which had been fully developed in the New World, eventually found their way into India. They belong to four or five varieties of *Capsicum*, each domesticated in different regions of Mexico and South America.[7k] The main form, *Capsicum annuum*, was domesticated in Mexico, where wild forms go back to 5000 BC. Other forms appear in Peru (2000 BC) and slightly later on the coast. Even the mild, globular capsicum types were known early, but have become popular as vegetables only in recent times.[7k] Other types are the tiny and very pungent bird chilli (birds play a large part in its dispersal), the common bright red, thin-walled form (which is dried in the sun, either spread on the ground or on roof-tops, and ground to a powder), the green chilli, the red pimento and the very pungent Irish chilli used to make Tabasco sauce. The most pungent Indian chilli is Birdeye; others go by such names as sannam, mundu, Coimbatore and Bombay cherry. An intensely coloured but non-pungent variety of chilli is grown in Kashmir, and also in north Karnataka and Goa, where it is known as the bedigē or bydagai.

China, foods from Sanskrit terms for several food products indicate their Chinese origin.[17Ba,152a] These are chināni for the peach, chīnarājaputra

for the cultivated pear, and chīnasālit for lettuce. Charaka mentions a sinchitikaphala, which could refer to an apple of Chinese origin. The cinnamon in Sanskrit and Hindi is dālchīnī, meaning Chinese bark, an item known to have once been imported from China. A common current Hindi word for sugar is chīnī. Granulated white sugar was imported into south India[69b] in the early Christian era, and perhaps into western India, which may account for the name. On the other hand there is evidence that a Chinese delegation visited Emperor Harsha in the seventh century AD to learn Indian techniques of sugar processing,[153] while in AD 1406, the Chinese admiral Ma Huan visited Bengal and noted both white sugar and granulated sugar[26Ba] (*see* also sugarcane products).

Apart from the fruits earlier listed, the white mulberry, *Morus alba*, was brought to India from China,[7e] as also the blackberry, and in more recent times, the litchi. Of Chinese origin also are both the sweet cherry and the peach, which later became popular throughout the world. Camphor has all along been imported into India from China,[134] and is even called chīnakarpūra. China developed the leafy variety of the *Brassica juncea* (rai), which in India is used as a vegetable.

Two accretions from China are of more recent origin. The small, thick-leaved tea (q.v.) plant grown from varieties found in Assam when the first tea plantations were raised there around AD 1835, were later extensively crossed with Chinese varieties, and some from Myanmar, to yield the tea types now grown.[2s] The Chinese words cha and teh for tea have entered every language in the world. The soybean (q.v.) originated as early as in 1200 BC in China, and was called shu or sou by Confucius. In 1908, soybean from China was noted growing in eastern India, but the crop made little headway till the introduc-tion in the 1970s of American-type soybean varieties, which, after acculturation, exploded in India (*see* soybean).

chīnī *See* China, food from.

chironji *See* nuts.

chocolate A factory to make chocolate set up during the First World War in Bilimoria, Bombay Presidency, by a person called Sardesai soon closed down, as did two others put up about 1936.[119d] Sathe Biscuit and Chocolate Co. Ltd. was established in Pune during the Second World War, and before the War ended, more factories had come up in Bombay, Agra and Madras. By Independence, about 550 tonnes of cocoa powder and chocolate were manufactured in India, with imports of these products well below this figure.[119d]

chowka(i) Squares of cloth, often beautifully worked, on which food was served to diners sitting around them.[67b] Later, a chowki dinner was served by nobility, for example in Hyderabad, on low square tables,

around which sat four or eight cross-legged diners.

chūlāh A mud fireplace, common even today, usually some 15–20 cm high, with an inlet for inserting logs of firewood or twigs, and knobs on the rim to support the cooking vessel. The device is very old. The Vedic sacrifices prescribe the use of a chulli,[65,66] and excavations at Nageshwar (2500–2000 BC, an Indus Valley settlement) have revealed a U-shaped chūlāh with a front opening and three round knobs.[154] Remnants of chūlāhs have been found dated between 1500 and 1000 BC in Ahar, Navdatoli and Jorwe in Maharashtra,[76] those at Ahar being so designed that several pots could be cooked simultaneously.[60b] Chūlāhs found at Atranjikhera (600 BC) had no knobs. The Ajanta paintings (seventh century AD) depict a kitchen with knobbed chūlāhs.[155]

chunām Hindi for slaked lime, probably from the Sanskrit chūrna, a powder.[1p] A dab of it is frequently smeared on the betel leaf (q.v.) before mastication, where it serves to release the alkaloid.

churning Even the *Rigveda* (*c.* 1500 BC) has several references to the churning of diluted curds with a corrugated stick, the mixture after the operation being called prasadjya.[6a] The Lakshmana temple in Khajuraho shows a woman rotating, with a length of stout rope, a stick in a pot;[129] this would certainly have carried at its end a corrugated wooden block to achieve concussion, as is still common today throughout rural India. An unusual churning unit in parts of Karnataka is a long bamboo pole fitted at the end with a concave piece of coconut shell bearing three holes; this is worked up and down to achieve churning in a tall, narrow cylinder of tinned copper. Standard commercial butter churns entered India soon after the turn of the twentieth century, and a very large one was installed in 1930 at the Polson Model Dairy in Anand, Gujarat.[119c]

chutney Anglicization of the Hindi word chatni, meaning a freshly ground relish consisting of ingredients such as the coconut, sesame, groundnuts, puffed Bengal gram, several dhāls, raw mangoes, tomato, mint leaves and the like. In colonial times it was used to denote a preserve, usually of mango slices, slightly spiced and placed in sugar syrup. These were manufactured in India for export mostly to England, and brand-name recipes developed, like Colonel Skinner's, Major Grey's and Bengal Club chutney.[119e, 389]

cigar An unusual cigar with which to end a meal is described by Sushrutha.[6i] A reed was smeared with sandalwood paste containing ground spices like nutmeg and cinnamon. This was allowed to dry and the reed withdrawn to leave a fragrant cigar with which to perfume the breath.

cinnamon This is the coca of Kautilya's *Arthashāstra*,[6d] also mentioned as tvak by Vaghbhata.[77] It is the delicately flavoured bark of *Cinnammomum zeylanicum*, which grows wild in south India. An inferior cinnamon is the bark

of *Cassia tamala*, which grows in the Himalayas and the eastern Khasi Hills; this tree also yields the tejpat (q.v.) leaves used as an aromatic flavouring.[2t] The best cinnamon has always been imported from Sri Lanka, and the Sanskrit/Hindi word dālchīnī for the product means Chinese bark, probably once imported from China.

Historical writings reflect these facts. Ktesias (416–398 BC) mentions karpion as a product of India,[156] and Calicut, according to Nicolo dei Conti (*c.* AD 1500), 'abounded in cinnamon'.[29a] One of the cargoes in a ship of the *Carriera da India*, set up for exports to Portugal, included nine tonnes of cinnamon.[157] Marco Polo noted that cinnamon grew 'in the Pandya country'[8Ah] and Thomas Stevens (who arrived in India in AD 1579, stayed for forty years, and was perhaps the first Englishman in India) accurately recorded that 'coarse cinnamon grows here but the best cinnamon comes from Ceylon where it is pilled from young trees'.[8Bg]

Curd in ancient south India was sometimes flavoured with pepper, ginger and cinnamon.[104] In AD 1623 Delle Valle, while in Surat, 'drank a hot wine, boiled with cloves, cinnamon and other spices which the English call burnt wine . . . drinking it frequently in the morning to comfort the stomach . . . particularly in the winter to warm themselves'.[88b]

citrus fruits A family of enormous variety found all over the world, the original home of citrus fruits is now accepted as being northern India.[158a] No wild ancestors are known, and no dates can be assigned.[71] New hybrids and sports constantly arise, earlier by chance in southeast Asia, and more recently by the hand of man. Because of uncertainty in the criteria necessary for the classification of any variety as a species, the citrus family has variously been assigned 14, 36, 145 and 157 species.[158b]

A simple classification comprises four main groups, and one miscellaneous group that could itself include a dozen types. The acid group includes several species native to India.[158a,158b] The large citron is *Citrus medica*, whose Sanskrit names are mātulunga and bījapūraka. The lemon is *C. limon*, native to India, which includes in its fold varieties like the galgal of Punjab, the patnimbu of Assam, the bara-masia of western Uttar Pradesh and the genoa of Cuddapah. The rough lemon *C. jambhiri* is the sour jāmbhīr of antiquity, and the karnakatta is *C. karna*, with an orange skin and an orange flesh. The meeta-nimbu or sweet lime, of Indo-Iranian origin, is *C. limettoides*, exemplified in India by the rather insipid chikna of Saharanpur. The familiar yellow nimbu and kāgzhinimbu (*C. aurantifolia*) are probably native to Malaysia, despite their Sanskrit names (nimbuka, numbaka, of probably Munda origin), the sobriquet Indian lime, and an undoubtedly long history in India. The orange group of citrus plants includes two of likely Indian origin.

The nārangi (Sanskrit nāgaranga and airāvata), *C. aurantium*, could be native to north-east India, but its association with the nāgas could suggest a south Indian identity. The mosambi, sāthkudi or sweet orange (*C. sinensis*), could be of Assamese or Chinese origin. The third group, mandarin-tangerine, includes the loose-jacketed citrus fruits of Nagpur and Kodagu. The fourth includes only two varieties, the pummelo or pomelo of Malaysian origin, which is called chakotra in India, and the grapefruit (q.v.) that was developed from the pummelo in the West Indies. Under the fifth or miscellaneous group would fall such India-generated citrus fruits as the gajanimmu (*C. pennivesiculata*), the Guntur sour orange kichili or valpudi (*C. maderasapatana*), and the calamondin or hazāra (*C. madurensis*).[158a,158b] Of course many recently imported varieties also grow in India: the chikna (*C. limetta*), several tangerines with deep orange to red skin colours, and the kinna or kinnow, an orange-tangerine cross with abundant acidic juice developed in California and brought to India in the 1960s.[8Da]

Though first mentioned only around 400 BC in the Buddhist-Jain canonical literature (they are fruits permitted for adherents), many citrus fruits go back much longer. Of historical interest is the fact that while studying at the Nalanda Buddhist monastery in the seventh century AD, Xuan Zang was served as many as 120 jāmbhīri fruits every day,[103d] possibly for use in the long intervals between solid meals. Babar listed eight citrus fruits that he encountered in India: the orange, lime, citron, santhra, galgal, jāmbhīri, amritphal (perhaps the mandarin orange) and amal-bīd.[146] He noted that a single nārangi tree in Bajaur had yielded 7000 fruit, while of the amal-bīd he reports: 'They say that a needle melts away if put inside it, either from its acidity or some other property. It is as acid perhaps as the citron and lemon.'[146] Bernier in AD 1616 noted the preparation in Bengal of sugar preserves from large citrons.[19b]

claret Now a term applied to the dark red wines of Bordeaux, claret once simply denoted wines of a light red colour. Claret was the favourite drink of Britishers in India, as Delle Valle reported in AD 1623.[88b] Later in Calcutta, a gentleman drank three bottles of claret after dinner.[159] It was never manufactured in India, but could have been among the 'red wines, white wines and brandies' for which Maharaja Ranbir Singh of Kashmir won a gold medal for 'purity and excellence' at the Calcutta International Exhibition of 1884.[119a]

clove *Syzygium aromaticum* is originally from the Moluccas, also called the Spice Islands, in eastern Indonesia. The Sanskrit lavanga derives from the Malay term bungalavanga, and occurs in writing in the Buddhist-Jain literature, the *Rāmāyana* and the *Charaka Samhitā*,[2u] suggesting the presence of the

clove in India a few centuries before the start of the Christian era. The English word clove is from the Latin clavus, a nail, which the dried flower head strongly resembles.

Tamil Sangam literature of between the third and sixth centuries AD contains references to the clove.[69b] It was used as a meat spice, in sweet pickles, mixed with bhang for chewing by the wealthy,[130b] and to fasten a betel quid for the nobility, a practice common even today among the wealthy. A shipload carried back by the Portuguese *Carriera da India* included nine tonnes of cloves.[157] In making the 'burnt wine' of early colonial times, cloves were used as a component, besides cinnamon (q.v.).[88b]

cluster bean *Cyamopsis tetragonoloba* is the guār (Hindi), which may have originated in Africa and been brought by Arab traders to southern or western India.[2v] It is mentioned as vālōr in a book written in Gujarat in AD 1520.[136] The pods are eaten, and the leaves and stems constitute an excellent nitrogen-rich cattle fodder and manure.[2v] In recent years, the pods have found a non-food use as the source of a valuable galactomannan gum.[7e,99d]

coconut Indian mythology credits the creation of the tall coconut palm with its crown of leafy fronds to the sage Vishwamitra, to prop up his friend King Trishanku when the latter had literally been thrown out of heaven by Indra for his misdeeds.[160] Botanists place the origin of the coconut palm in the Papua New Guinea area, in some very distant past.[161] The plant evolved as far back as 20 million years ago, long before man appeared on earth, to judge from fossil remains, including one from Rajasthan.[162] Coconuts can float in the sea for very long periods, and then sprout when they beach on a shore. This was dramatically demonstrated when coconut palms were found growing on a new island created by volcanic activity in Krakatoa in 1929–30.[161] Man was thus not required to spread coconut in the lands of the southern seas. The Sanskrit term nārikēla (Hindi nārial) for the coconut is itself believed to be an aboriginal word, derived from two words of southeast-Asian origin, niyor for oil and kolai for nut.[163] The coast line of the Deccan must have been familiar with the coconut and its oil long before the northern mainland was (despite a clay representation found in Harappa and thought to be that of a coconut).[164] Indeed the Tamil word nai for a semi-solid or greasy fat appears to come from words like ngai and niu used for coconut oil in Polynesia and the Nicobar Islands.[165]

Literary evidence seems to bear this out. The Tamil word for coconut, thengāi, means either a sweet fruit (which seems unlikely) or, more plausibly, a fruit from a southerly direction.[163] Tamil literature only goes back to about 100 BC, but the coconut is constantly mentioned. In Sanskrit the nārikēla only surfaces after *c.* 300 BC in the *Rāmāyana*,

Mahābhārata and *Vishnu Purāna*. Megasthenes, who lived in Pataliputra (Patna) about 300 BC, is believed (from a later reference to his writings by Aelian) to have mentioned coconuts in Trapobane (Sri Lanka).[162] The late adoption of the coconut into Aryan rituals also argues for late familiarity with the nut in north India.

In the seventh century AD, Xuan Zang used the Sanskrit word nārikēla in his account written in Chinese.[8Aj] To John of Monte Corvino (AD 1292) they were 'Indian nuts, as big as melons and green as gourds'.[29c] Garcia da Orta states that the word cocos means monkey's face, which is coco in Spanish and macoco in Portuguese,[166] and Barros in AD 1553 says that coco is 'a word applied by women to anything with which they wish to frighten children'.[1q] Even earlier, in the thirteenth century AD, Ibn Battuta had remarked that a coconut 'resembles a man's head, for it has marks like eyes and a mouth, and the contents, when it is green, are like the brain. It has fibre like hair . . .'[8Bc]

The people of south India, as expected, were familiar with the coconut from antiquity, and early Tamil literature has numerous references to it. Thus in the *Patthupāttu,* we read that 'women, bright-bangled and garlanded, drink the juice of the coconut, which grows in the sand'.[167a] The diverse uses of the coconut are best exemplified in the cuisine of Kerala. Aviyal is a dish of soft vegetables like green bananas, drumsticks, various beans and even green cashewnuts cooked in coconut milk, and then tossed in with some fresh coconut oil in sour curd. Kālan is the same preparation that uses only green bananas, while ōlan uses white pumpkin and dried beans. Pulisseri refers to a dish of small pieces of ash gourd or raw mangoes cooked with coconut, curds and chilli. Prathamān is a generic term for a popular sweet confection; in one version, mung dhāl is boiled in coconut milk and flavoured with palm jaggery, cardamom and ginger powder, and sprinkled with fried cashewnuts, raisins and coconut chips. Most flesh foods and fish, though spiced, employ a generous quantity of coconut milk (*see* coconut products) which tempers the spice. The morning āppam or idi-āppam is accompanied with sweetened coconut milk, or a mutton stew cooked in coconut milk, or fish in coconut sauce with tiny pieces of raw mango. Shreds of dried coconut (*see* cōpra) set in a mould of thickened jaggery or sugar, kōpri-mittāi, is a popular confection all over India. Common to all of south India as an accompaniment to many snack foods, like the dōsai, adai, pesarattu and vadāi, is a chutney of ground coconut with some green chilli. Shreds of coconut or copra frequently find a place in a betel quid. Freshly grated coconut is frequently sprinkled over a dish of cooked beans or other vegetables.

Two unique confections of Goa

use the coconut. Bibinca is a dessert of egg yolk, flour and coconut milk which is built up in layers that are baked successively, and then turned upside down to cool. Bēsan (q.v.), ground coconut and sugar, when baked together yield Dos de Grão, with a thick firm crust and a chewy centre. The moley (q.v.) of the British in Madras uses plenty of coconut in making a thick wet curry, the name being a corruption of the word Malay, from where the dish originated.[1r]

The coconut is called srīphala, the blessed fruit,[160] and to cut down the palm is regarded as a definite sin.[168] The dehusked coconut is an auspicious symbol in Indian rituals. It is offered to guests, used in marriage ceremonies, and, placed on a brass pitcher along with mango leaves, is used in consecrating a house or installing a deity. A coconut, split open and dabbed wih vermilion, later replaced the animal head of early Vedic sacrifices. The fisher community of Maharashtra have a festival, Nariyal Purnima, when the sea is propitiated by offering coconuts before the fishermen resume their voyages in their boats.

Accompanying the coconut wherever it went was the coconut scraper, an upright metal piece with a curved serrated edge mounted on a small wooden board that could be held down firmly with the feet.

coconut products *Coconut water:* The abundant liquid product in fresh tender coconuts is a delicious natural drink all along the coast, particularly in south India. As the nut matures, the volume of liquid is reduced considerably, and the taste turns brackish. In ancient Tamil country, a drink called munnīr, relished by women, was made up equally of green coconut water, sugarcane juice and fresh neera (q.v.).[61] In the Indian medical system, coconut water is specific to cure a derangement of pitta (biliousness).[33]

Coconut milk is a hand extract of fresh coconut gratings with hot water, the first extract giving a thick milk and the second a thin one. It is used in preparing many vegetable and meat dishes, to which it imparts a distinct flavour, and as an accompaniment to rice items like the āppam and idi-āppam (*see* āppam).

Coconut honey is described by Ibn Battuta in the thirteenth century AD as the product obtained by boiling down the sweet extract of several palms (neera, q.v.): 'The merchants of India, Yemen and China buy it and take it to their own countries where they make sweetmeats of it.'[8Bb] Perhaps what is meant is the boiled-down juice prior to the point when jaggery crystallizes.

Coconut oil: Long obtained domestically in south India by boiling with water either the shreds of fresh coconut (to release venthenna or avel, with a delicate perfume) or of copra (to release muthel, of coarser flavour).[169a] The ghani (q.v.), called chekku in the south, was also employed for the large-scale extraction of oil from copra. Coconut oil is extensively used in Kerala as a hair

and body oil, for burning in wickered oil lamps, and as a lubricant. It is also used in medication, for example for eczema, with garlic segments crushed in the oil, or for anointing burns, with hariali grass (*Cyanodon dactylon*) infused in it.[170] It is of course the prime culinary fat of Kerala (q.v.).

Coconut flowers are edible; they are mixed with curds for consumption by diabetics, and are given to newly weds as an aphrodisiac.[170]

coffee Edward Terry makes the first reference in writing to coffee in India in AD 1618 using an anglicization of an Arabic word: 'Many of the people who are strict about their religion use no wine at all. They use a liquor more healthful than pleasant (which) they call cohha: a black seed boiled in water, which little alters the taste of the water. Notwithstanding, it is very good to help digestion, to quicken the spirits and to cleanse the blood.'[134] Sixty years later, Jean de Thevenot remarked that in Sindh the brahmins drank nothing but 'water wherein they put coffee and tea'.[106b]

Coffee plants originated in Ethiopia, where the leaves were chewed as a stimulant.[7m] From there it went to Yemen in Saudi Arabia, which is credited with raising the first coffee plantation in the fourteenth or fifteenth century. Coffee seeds were brought to India by Arab traders from middle-eastern ports for use by the gentry. By the seventeenth century both seeds and plants had been carried from Saudi Arabia to southern Asia and South America. Arabs introduced coffee planting in Sri Lanka even before the Dutch invasion in AD 1665, and the same year a plantation (nothing is known of its fate) is noted in south India.[171] Around AD 1720 a Muslim divine, Baba Budan, returned from a pilgrimage to Mecca with seven coffee seeds, which he grew outside his cave in the Chikmaglur hills in Karnataka.

From about AD 1830, British pioneers embarked on a rapid development of coffee estates, and by 1895 a peak of one hundred thousand hectares had been reached.[119b] Two types were raised: *Coffea arabica* at higher altitudes, and the sturdier *Coffea robusta* in the lower reaches. The berries are plucked when ripe and red, and the outer pulp removed by wet or dry methods to yield a variety of beans (Cherry, Plantation, Parchment, etc.), from which the silvery inner skin is removed mechanically (curing) before the beans are roasted and ground.[169b] As much as 49 per cent of roasted chicory root may be added, which lends a dark colour, some aroma and a certain bitter taste which is frequently relished.

'cold' food In the science of ayurveda (q.v.), the effect of any food on body equilibrium is by reason of its taste (rasa) and property (guna). Of the ten pairs of contrasting gunas, an important one is 'hot'/'cold' (ushna/shīta), not in the sense of temperature, but of physiological action. This medical theory in its time travelled round the world to the Middle East,

Greece, Spain, South America and the Philippines, and directly from India to the Far East,[111c] where this food theory likewise held sway.

While common perceptions of which foods are 'cold' do differ, in general they embrace most pulses, some vegetables, most green leafy vegetables, many juice fruits, sugarcane juice, honey and dairy products. 'Hot' foods include many whole grains, most forms of meat, fish and seafoods, nuts, many spices (and especially mustard seeds), jaggery, and fruits like the mango, papaya and jackfruit. In practice, 'hot' mangoes and papayas should be eaten accompanied by milk, 'hot' pepper, ginger and turmeric will counteract a head cold, and 'cold' buttermilk will quench the fires of diarrhoea. In terms of season, 'cold' and 'heavy' foods are avoided, and pungent foods preferred, in spring, whereas in the summer months, the choice is of 'cold' and 'sweet' foods, and in the monsoon season of 'hot' foods. Winter 'hot' foods would be items like meat and fish, sweet confections of sesame seeds, copra and almond, and sweet laddus rich in fat.

In a modern scientific experiment, human volunteers given a diet of only 'cold' foods (in contrast to others giving a composite diet of only 'hot' foods) showed a desirable alkaline body reaction, a much lower excretion of sulphur, and a lower retention of nitrogen.[172] Thus 'hot' foods conduced to an acid balance in the body (*see also* ayurveda).

colocasia *See* aroids.

colostrum The thick secretion of a dairy animal soon after birth of the calf, which in a few days progresses to normal milk. It is rich in nutritive elements for the newborn, but was considered unclean and interdicted as a human food for ten days in Vedic times.[6a]

conjee Anglicization of kānji (q.v.), the residual water from boiled rice, used as a beverage for invalids in colonial times (*see also* mulligatawny).

cooking *Principles*: Four elements provide the key to the taxonomy of Indian cooking: fire, ghee, cultivated grains (anna), and non-cultivated food materials for which the plough is not employed (phala).[22,23] Two main categories of cooking can be discerned. Cooking without fire, the first category, can be performed with water or manual techniques (washing, soaking, peeling of fruits and vegetables); or with milk products (sweetened or flavoured milk, a raw vegetable raitha); and with the air and sun (pickling, dehydration). The second category is cooking on fire, either with or without the use of ghee, food items like cultivated grains, fruits and vegetables, or other milk products. An important concept is that milk and ghee are considered to be already fully cooked and ritually pure, and so confer purity on foods cooked in them.

Cooked food falls into two main ritual classes. Kaccha foods are those freshly cooked using water (like rice,

rōti, dhāl, khichdi) within the kitchen area following ritual rules (described later), to be served to the family dining within that area. Pucca foods are those cooked using ghee, which can be taken out of the kitchen for consumption, and shared with people outside the family. Concepts of pollution underlie these practices. The domestic hearth in a Hindu home was an area of high purity, even of sanctity, frequently next to the area of worship. It had to be located far from water disposal areas, and well demarcated from sitting, sleeping and visitor-receiving areas. Before entering the cooking area, the cook was obliged to take a bath and wear fresh, unstitched garments, frequently removing any upper garment while cooking. After a death in the family, the hearth would frequently be demolished and built afresh.

A larger royal kitchen, for example, was specified in the *Shivatattvaratnākara*[51] to be 32 feet long and 8 feet wide.[51] On the east side were placed iron ovens with openings of different sizes to hold various vessels. Embers for use in these ovens occupied the southeast, firewood the south, waterpots the west, and winnowing baskets and brooms the north side. The pestle and mortar, the pounding mortar, and the place for cutting vegetables was on the northwest, and the working area (kalpana) was to the south-west.[51] The head cook supervised the royal kitchen, and specialists could be employed for specific operations (*see* cooks). An official food-taster was also employed. In Akbar's kitchen, 'for cooking of food only rainwater or water taken from the Jamuna and Chenab is used, mixed with a little Ganges water . . . His Majesty appoints experienced men as water-tasters'.[28]

Cooking practices: Classic Sanskrit literature lists these as thalanam (drying), kvāthanam (par-boiling), pachanam (cooking in water), svedanam or svinnabhakshya (steaming), apakva (frying), bharjanam (dry roasting), thandūram (say grilling) and putapāka (baking). Devices and practices for each of these also developed: chūlāhs (q.v.) and ovens, spits (shūla), the thavā, grills, rolling pins, steaming devices, and cooking in a seal of dough (dumpukht, kenchu).

Modern cooking practices use several specific Hindi terms.[173] Thus bhunāo is the initial surface browning of vegetables or meat by slow dry roasting or pan frying with frequent turning, before boiling down to a wet or dry curry. Baghār is the initial frying of spices in the pan in a little oil before adding the vegetables, dhāl or meat; sometimes the spices after baghār may be used to put the finishing touch on, say, a thick cooked dhāl. Deep-frying in a kadhāi is talna, and tandoor-grilling is bhunāna. An Indian technique for rendering a dish fragrant with the aroma of, say, ghee or cloves is quite old: the latter are placed in a small katōri of hot embers, or even a cup

of onion skin, and the dish covered to fumigate its contents.[173]

Cooking and related utensils: A variety of utensils in clay, bone, copper and bronze have been found even in Indus Valley excavations, like pans, plates, frying pans, large copper vessels, spouted vessels, and spoons and knives of flaked chert.[174] The Vedic sacrifices employed numerous utensils made to rigid specifications,[65,66] which can be classified as containers, large earthen cooking pots, ovens, skewers and potsherds for roasting, ladles and spoons, offering vessels, stirrers and scrapers, cutting implements, trays, fire-pokers, strainers, pounders and grinders, and leaf plates and cups. Many of these are still in domestic use, like the chulli (chūlāh, q.v), the flat grinding stone drshād, the spit shūla, grinding stones both upright and horizontal, and numerous vessels.[111d] Some vessels mentioned in later literature are iron pans (āluhi), a boiler (pitara), frying vessels, a roasting plate bhrasta (perhaps the modern thavā), a molasses pot (phanita-sthāli) and leather bottles to hold water and oil.

Tamil literature of between the third and sixth centuries AD is a rich source of information on daily life.[69,86,102] Among the vessels mentioned are the mortar and pestle for pounding, stone millers for wet grinding, pots of many shapes and sizes for specific uses, spoons and ladles, fire-raisers and censers, pokers, winnowing pans, sieves, and bamboo coops to cover foodstuffs. Kitchens were constructed with storage lofts; they had mats to sit on, and plates and cups made of leaves (lotus, banyan, teak and above all banana, *see* p. 133) to eat from.[69,86,102]

Many Indian utensils reflect the shapes of natural objects.[175] Gourds were the inspiration for lotās and chombus, and fluted pumpkins for numerous rounded, base-heavy water and cooking pots. The shapes of the coconut, mango, lotus flower and banana leaf were transferred to vessels made of clay, stone, leather and metal.[175]

cooks Among Sanskrit terms for cooks were sūpakāra, bhōjanadatr, alarika, ōdanaka and sudas.[177] The specialists in frying and baking were the apūpika and kandavika respectively, and the avalika was the expert in spicing.[177] The sumptuous food served at a picnic meal described in the *Mahābhārata* was prepared by 'clean cooks, under the supervison of diligent stewards'.[58] The *Arthashāstra* gives details of the spices that a cook would need to dress 20 palās (*c.* 700 grams) of fresh meat — one kaduba (175 grams) of oil, two-thirds of a kaduba (120 grams) of curds, one palā (35 grams) of salt and one-fifth of a palā (7 grams) of pungent spices[16b] (*see also* cooking).

copra Copra is the kernel of the coconut. Drying hemispheres of the split nut for a week in the sun yields cup copra. The whole nut dried for up to a year yields ball copra. Cup copra goes mostly for crushing an oil

(termed muthel), which is the preferred form of coconut oil for cooking use.[169b] Shavings of ball copra are a food ingredient, used sometimes in cooking, but mostly to fashion confections like laddus which have a pleasant chewiness. Copra is an anglicization of the Malayalam word koppara, which may have a connection with the Sanskrit kharpara, a skull.[1x]

coriander The two Sanskrit words for the seed, dhanyaka (from whence the Hindi dhaniya) and kusthumbīra, first occur in Sanskrit in Panini's grammar (*c.* 600 BC) and the *Arthashāstra* (*c.* 300 BC).[6j] The latter word is thought to be of Dravidian origin,[7j] and resembles the word kothamalli used in the south for green coriander leaves (the Hindi term is kothmīr). The seed in powder form is used to flavour curries and confectionery, and the leaves serve as a topping for raitha, dahi-vadā, kosumalli, khāndvi and the like. *Coriandrum sativum* is native to the Mediterranean.

cottonseed oil The cotton plant, its seed and fibre have been known in India since 4500 BC.[111e] The oil when expressed is black in colour; it contains undesirable compounds, and was earlier not considered edible. The means of removing these compounds were developed mostly in America about a century ago, and refined edible cottonseed oil was first made in India in Punjab in the early 1930s, and more widely after the 1960s.[119f]

cow Cattle were an integral part of Vedic life, and Sanskrit literature before 800 BC is full of references to the cow, itself called vara or blessing, and its milk. In the *Rigveda* alone there are 700 references to the cow (as many as to Indra himself) as a symbol of endless bounty in numerous contexts.[178] Dairy products were highly venerated; the urine of the cow was sipped; and the dung was the usual disinfectant smeared on the hearth and the courtyard. The supreme purificatory material, panchagavya, was a mixture of five products of the cow, namely milk, curds, ghee, urine and dung. The interdiction of the meat of the bounteous cow as food (*see* beef) was the first step to total vegetarianism (q.v.), an ethical concept that may have been triggered off by an economic one.

cowpea The cowpea (Sanskrit nishpava, Hindi lōbia and chowli, Tamil karāmani) came to India from West Africa, from where also originated rāgi, bājra and jowār.[179] *Vigna unguiculatus* var. *sesquipedalis* has long pods and small edible kidney-shaped seeds, and is first mentioned as nishpava in Buddhist canonical literature (*c.* 400 BC).[6c] The Hindi term may derive from the Sanskrit lōbhya, meaning alluring,[2y] and the word cowpea is an American corruption of the English word cavalance which was then in use.[180]

cream This is not a key product in traditional Indian milk handling, and it is only mentioned incidentally in literature, as satanika in Sanskrit, and edu or perugu in Tamil. Xuan Zang records it in a list of the 'usual foods' served to him in the Nalanda monastery in the seventh century AD,[8Aj] and again as one of the 'pure articles of food' that he was served by the Khan of the Turks at the city of Su-yeh, the others being rice cakes, sugarcandy, honey sticks (?) and raisins.[316]

A traditional Indian delicacy is malāi, a form of white clotted cream. A large volume of milk is kept simmering, to allow a layer of fat and some coagulated protein to collect on the surface. This is skimmed off with a flat ladle and allowed to cool, and the process is repeated twice. In the home, it is still a common practice to allow boiled milk to cool undisturbed, and then skim off the cream into a bottle; after this has collected for a few days and soured, it is diluted and churned to butter by shaking the bottle for a while, or thumping it repeatedly on the floor.

A cream separator was first brought into Bombay in 1890, and in the next three decades thousands were in operation all over the country in military and other dairies catering to local European needs.[119] By Independence about 10,000 tonnes of cream was being produced, some for local sale, but mostly for conversion to butter and ghee.

crocodile Among a formidable list of meats declared edible in the *Charaka Samhitā* is that of the alligator.[6f] In the same work, an aphrodisiac called vrsya-pupalika is mentioned, consisting of a large omelette of crocodile eggs and rice flour cooked in ghee.[6f] The fat of the alligator was permitted for cooking by the Buddha when a monk was ill, suggesting perceived medical properties.[6c]

cucumber Occurring as early as in the *Rigveda* (*c.* 1500 BC) under the name urvāruka, in the *Arthashāstra* as chidbhita, and elsewhere as sukāsa,[6k] the cucumber, *Cucumis sativus*, or khīra in Hindi, is undoubtedly of Indian origin. Indeed bitter wild forms are still found in the Himalayas, and an occasional cultivated fruit will still taste bitter. It grows on the banks of rivers and on their dry beds. The cucumber is often eaten raw with salt, or in a raw green vegetable mix like the kosumalli, kocchumber and pacchadi, or diced into a curd-based raitha, or even in a cold soup, like the sarki of the Bohras.[181] Cucumber is grown all over India, and Varthema in AD 1508 noted the 'vast quantities' that he saw in Kannoor on the west coast of south India.[21c]

cumin The seed of *Cuminum cyminium*, native to the Mediterranean region, but mentioned in Indian literature after about 300 BC (Charaka, Sushrutha, Kautilya) as ajaji, karavi and kuchika.[6j] Late Sanskrit has jeeraka (Hindi jeera) from the Persian zīra.[2z] Jeera seeds or powder are an essential component of curry spicing. They have the reputation of being a good

digestive, and are pungent, dry and heating.

curd For millennia, curd has been prepared in every Indian home by seeding fresh cow or buffalo milk, boiled and cooled to body temperature, with a small quantity of curd from a previous run, and leaving the mass to set undisturbed overnight in a warm place. A sweetly acid, mild flavour is prized in curd, determined chiefly by the organisms present in the starter. These should by modern knowledge be mainly *Lactobacillus acidophilus* and *Streptococcus lactis*, but several others in smaller proportions play a part in the final taste and flavour. Very early Vedic references suggest, in place of a curd starter, materials like the bēr fruit (q.v.), the bark of the palash, and the puṭika creeper.[6a] Tamil literature poetically and aptly compares the pat of starter curd used to 'a white mushroom'.[83] Curd of different degrees of acidity was believed to have different effects on the body. To store curd, leather bags were used, though obviously for short periods, since curd that was not immediately used at the table or in cooking was churned without delay to butter (q.v.). A curd seller is termed mathitika in the *Arthashāstra*. In Bengal, milk to be curdled was first thickened by boiling down; to this was added caramelized palm jaggery, cane jaggery or sugar, before the curd was set, to yield mishti-doi for consumption as a dessert (*see* p. 160).

Numerous historical references testify to the wide-ranging use of curd. In Vedic days it was eaten first as an accompaniment to staple barley dishes, and then with cooked rice. A blended curd-rice dish is mentioned even in the *Rigveda* as karambha. This name is still in use in Gujarat, and is mentioned in the *Bimalprabhanda* of Lawanyasamay around AD 1200,[53] and three centuries later in the *Varanaka Samuchaya*.[136]

Curd was a versatile base material. The addition of rāi (black mustard seeds) yielded the rājika-raddha of the *Mānasollāsa* (twelfth century AD), and themana was a soup made of curds.[49] In early Tamil literature, thayiru (curd) is spiced with pepper, cinnamon and ginger.[104] Green materials like the cucumber, onion and radish in diluted curds yielded raithas and pacchadis. The palidhya of Karnataka was a dish of spiced vegetables cooked in curds and finished with a dressing (baghār) of spices fried in oil.[67] In a meal served in about AD 1000, a curd dish of this type was served as the seventh course, before the last one of sweet, thickened milk.[6k] The mōru-kozhambu of the Tamil area is a curd-based vegetable stew. Vadās (q.v.), which are patties of deep-fried pulses, were placed in salted curd to yield dahi-vadās, the Hindi word dahi for curd deriving from the Sanskrit dadhi. A dish termed kadha described in early medical literature (perhaps resembling the yellow khadi of the present) was made by the acidification of dahi with the sour woodapple

fruit (kapittha) and the Indian sorred leaf (changeri, *Oxalis corniculata*, amrul in Hindi), followed by seasoning with pepper and cumin.[6f] Further additions of oil, sesame seed and urad dhāl yielded kambalika. To dewater curd, it was hung in a muslin bag for a few hours; sugar and spices added to the mass yielded shikarini (identical with the modern shrikhand), first noted around 500 BC.[6c]

Marinating meat with curd and spices prior to cooking is mentioned in the *Arthashāstra*[137] and again in literature on Akbar's kitchen.[28] In a traditional dish eaten by Rajput royalty, strips of roasted pork are first marinated in spiced curd, then baked with ghee in a wrapper, and finally grilled on a skewer.[182]

Diluted salted curd is itself a beverage, called ghola in early medical literature, while asaradadhi was the product from skimmed milk curd, rated as a 'hot' food.[33] Mixing bits of clove and raw pomegranate seeds with curd, with camphor added for fragrance, yielded sattaka.[6f] Whisking three parts of curd with one of sugar, and seasoning with dry ginger and rock salt, yielded rasāla or marjikā.[77] The medical authorities did not favour the use of curd at a night meal, and not at all in three of the six seasons of the year, namely autumn, summer and spring (*see* seasons and months).

Curd as a product of the cow is one component of panchagavya (q.v.), the supreme purificatory Vedic material. Unlike milk and ghee, which have in Hindu cooking a special connotation of being already fire-cooked and 'pure', with dahi it is not so. Curd carries living microflora; the latter are now recognized as regularly replenishing those in the lower intestine, thus being conducive to digestion and warding off infection. Curd more than 24 hours old is forbidden to Jains.

curry From the Tamil word kari, a term for black pepper, derives the Indo-Anglian curry, which has come to symbolize Indian food for the westerner. The term originally denoted any spiced dish that accompanied south Indian food, and was first so referred to, using the term caril, by Correa as early as in AD 1502 and by Garcia da Orta sixty years later.[1s] Later the word curry was greatly widened in usage to include a liquid broth, a thicker stewed preparation, or even a spiced dry dish, all of which appear in turn in a south Indian meal, each with its own name.[1s] Colonials like Mrs Eliza Fay served 'curry and rice' as a matter of course in AD 1780 in Calcutta,[131] as did thousands of other colonials living everywhere in India.

curry leaves The fresh leaves of *Murraya koenigii*, kari-pāk or karvepalli in Tamil, meetaneem and gandhela in Hindi, are widely used especially in south India to impart a distinctive multi-spice flavour to items like uppuma (q.v.), curd-rice, fried snack mixtures, and dry and liquid curries. Thus early Tamil literature notes the serving of a dish

of 'the tender fruit of the pomegranate cooked with butter and fragrant curry leaves'.[72] A few centuries later Kannada literature records 'an unfried brinjal bāji, which contained coconut shreds, curry leaves and cardamoms, mixed well, and flavoured with citrus juice and a little camphor'.[67b]

D

dahi *See* curd.

dahi-vadā The deep-fried pulse preparation vataka first occurs in the *Sūtra* literature *c.* 500 BC.[6b] The *Mānasollāsa* in the twelfth century refers to the soaking of vadās in milk to give kshīravata, and in soured kānjika (rice water) or curd,[49] but these dishes could well be even older (*see also* curd; vadā).

dalia A term for broken grain, for example of Bengal gram. This was often a by-product of the milling process (*see* chakki), and was ingeniously put to use in making laddus, idlis, porridges and gruel. The southern term for broken rice grains was thari.

date The original home of dates stretches in a belt across the Middle East and into north-western India. Both the wild date (*Phoenix sylvestre*) and the cultivated form (*P. dactylifera*) grow sporadically in various parts of India.[2a] Wild date palms are an important source of palm jaggery in Bengal, but the cultivated form requires an exacting combination of low humidity, low rainfall and adequate irrigation. They are not raised in India on any appreciable scale, and the demand for dates has always been met through imports. Faience sealings in the characteristic form of date stones, with a strong longitudinal furrow, have been found at Harappa,[164] and the term khajūra occurs regularly in Sanskrit literature from the *Yajurveda* and *Brāhmanās* onwards.[6a] Visitors to Sindh, like Al-Idrisi in AD 1080, speak of the abundance of dates,[8Ba] yet Xuan Zang four hundred years earlier categorically states that dates are unknown in India,[100a] which suggests localized usage then, as now. Muslims in India frequently follow the Quranic injunction of breaking their fasts with dates.[183] Dates are fruits permitted to Jains,[68] and are foods for 'sucking' in Hindu perception, being served as a second course in a meal, after a first course of fruits for 'chewing' and before the next course of foods for 'licking'.[6k] In health terms, the date is a 'hot' food (*see* 'cold' foods). It was a source of panaka fruit beverages (*see* beverages); the wine khajūrasava was made from it, and in Jahangir's court, dates were used to sweeten and flavour a distilled liquor.[56]

Deepāvali, Dīvāli The festival of lights signifies the victory of good over evil. It occurs in about October, and is traditionally associated with fire-crackers, and the preparation and exchange of sweetmeats. A speciality of the festival is moulded

forms of animals and toys in pure white sugar. Other sweetmeats also figure region-wise.

deer Venison seems to have had a special place in the Indian perception. Charaka extols jangalavāsa and its sauce as particularly nourishing,[24] and Sushrutha lists it among the foods recommended for everyday consumption.[77] The *Vishnu Purāna* (third/fourth centuries AD) recommends its use at a shrāddha ceremony.[38] Xuan Zang lists it among the permitted meats,[19a] and about the same time, an Assamese work, *Kāmarūpa Yātra,* notes that it is permitted for the upper classes.[115] A favourite food of Sita in the forest was rice cooked with deer meat and spices, called māmsabhūtadāna.[6k] Elsewhere in the epic we read of large haunches of venison boiled in different ways with spices and mangoes, and sprinkled with condiments.[58] In south India, venison was sufficiently esteemed to be an item of barter, with, say, sugarcane or beaten rice.[101] A dish of venison 'cut in slices' served to Edward Terry in the court of Jahangir was described as 'the most savoury meat I ever tasted',[134] The British in India rated highly the meat of the spotted deer; that of the antelope was dry and needed basting during cooking.[336]

dhāl Most pulses are dicotyledons, and splitting them with simultaneous dehusking in a stone chakki (q.v.) yields two clean halves, called dhāl. At least a dozen of the latter, like thuvar, chana, urad and masoor, are in common use. Charaka lists twelve under the class shāmidhānya. In ayurvedic perception, all dhāls reinforce the wind principle vata (q.v.), and most of them have a 'cold' connotation. Mung dhāl is recommended for everyday consumption, and is now known to be the least gas-forming of common dhāls, with Bengal gram the worst.

Dhāls are used in a myriad ways. They can be cooked into thick, medium and thin preparations, exemplified by the meeta masoor dhāl of the north, the spicy thuvar sāmbhār of the south and the soup-like rasam based again on thuvar. These are regular accompaniments to rōti and rice. Mixed dhāls feature in the dhansākh of the Parsis, and the panchbelē-usal of Maharashtra. Whole pulses with a binder like bēsan can be fashioned into deep-fried vadās and wadian, and used to stuff spicy kachauris and sweet products like the hōligē (pōli, q.v.). The flour of certain dhāls yields fried snacks; that of urad (q.v.) dhāl gives the fried medhu-vadā, and the flour of puffed Bengal gram (*see* bēsan) provides the base of a whole gamut of fried snacks. Items that use cereals and pulses together are important in that they provide protein complementation in Indian vegetarian diets; examples are the hōligē itself, the idli and dōsai, the dhōkla of Gujarat and innumerable others.

dhenki A foot-pounder for dehusking paddy, common in Bengal and along the Indo-Gangetic plain. It consists

of a wooden plank, pivoted in the middle, and worked up and down using a foot at one end; at the other end is fixed a stout wooden peg, which falls heavily on paddy held in a wooden or stone basin. The dhenki is of uncertain historicity, but is probably quite old, being the vāhana or vehicle of the ancient sage Narada,[184] and worshipped at a marriage or sacred thread ceremony.[185]

dhokla The dukkia is first mentioned in AD 1068 in Gujarathi Jain literature,[186] and dhōkla appears in AD 1520 in the *Varanaka Samuchaya*.[136] Bēsan (q.v.) flour is fermented overnight with curd, and steamed in slabs, which are then cut into pieces and dressed with fresh coriander leaves, fried mustard seeds and coconut shreds. A coarser version is khaman, and both are popular breakfast and snack foods in Gujarat.

diet Once used for therapeutic food injunctions, as in the phrase 'going on a diet', the word diet has now come to mean the customary daily food of people.

dietetics The *Charaka Samhitā* uses āhāratattva for the science of dietetics. The science of ayurveda (q.v.) is itself largely occupied with dietetics, being the effect of food materials on bodily health seen in relation to temperament, season and habitat.

distillation *See* beverages, alcoholic.

dōsa(i) A fairly thick batter of rice grits and urad dhāl in a ratio of 2:1 is ground together, left to ferment overnight, and steamed as patties to yield idlis (q.v.). Often the same batter is thinned to make shallow pan-fried dōsais. The dōsais of Tamil Nadu are thick and small; those of Karnataka are thin, large and crisp, and are frequently folded over to enclose a 'masāla' of mashed potatoes, onions and green chillies. Accompanying both types would be a sāmbhār (q.v.) or ground coconut (q.v.) chutney. Tamil Sangam literature in the sixth century AD[70] mentions the dōsai but not the idli (q.v.), which only appears in Kannada literature four centuries later. The *Mānasollāsa* written in the twelfth century AD in Sanskrit mentions the dhōsaka, for which only pulses, and no rice, were used (*see* idli for a discussion).

dōsha A key concept in ayurveda, dōsha has been defined as 'one of the three forces governing all biological processes'.[34] A balance of the three dōshas is expressed in good health, and any imbalance in various symptoms. The three dōshas are vata, which is governed by the elements air and ether; pitta by the element fire; and kapha by earth and water. Their relative strength in each individual determines his or her body type and temperament, which in turn defines susceptibility to disease and response to medication. The vata principle is responsible for the sensations and activities of the body; it regulates breathing, animates the psyche and generates activity. Pitta is related to every reaction in which heat is generated, in particular the metabolism of food in the body. It stimulates intellect and enthusiasm, and

encourages singleness of purpose. The principle kapha structures everything in the body, from a cell to the structural frame, lending strength, stability and suppleness; it builds resistance against disease, and accelerates the healing process [34] (*see also* kapha; pitta; vata).

drumstick *Moringa oleifera* (Sanskrit sigru and shaubhanjan, first mentioned in the Sūtra period;[6b] Hindi sājuna and saonjana; Tamil murungakkāi) is native to the sub-Himalayan region.[2b'] It is grown commonly in villages and kitchen gardens in Bengal, Assam and south India. The long, whip-like pods with soft inner seeds are cooked when tender, for example as a bhāja in Bengal, in sāmbhār in the south and in aviyal in Kerala. The root was used by colonials as a substitute for the pungent horseradish.[2b']

duck There is little mention of duck meat in Sanskrit literature, perhaps because, like the chicken (q.v.), it is essentially a scavenging domestic bird. An Assamese work of AD 600–800 recommends duck meat.[115] The *Ain-i-Akbari* (AD 1590) states that ducks for use in the emperor's kitchen were brought from Kashmir,[28] and a dish termed shikār consists of duck cooked with vinegar, garlic and chillies. The Syrians of Kerala frequently eat for a Christmas meal a roast duck with stuffing called mappas. The British in India enjoyed duck in roast and other forms. A deboned and stuffed bird cooked in a seal of dough was termed dumpoke, from the Persian dumpukht (q.v.).

dumpukht, dumpoke These terms refer to the baking of meat in a seal of dough. The Persian word dumpukht literally means air-cooked (i.e. baked), and occurs in the *Ain-i-Akbari* (AD 1590) along with the following recipe: '10 sers meat; 2 sers ghi; 1 ser onions; 11 misqāls fresh ginger; 10 misqāls pepper; 2 dāms cardamoms.'[28] The word was anglicized to dumpoke in colonial India, and frequently denoted a boneless stuffed duck cooked in a seal of dough.[2c']

The style of cooking was not confined to the north. Even in AD 1068, the Kannada writer Shantinatha in his *Sukumāracharitē* refers to slow cooking under a seal of wheat dough used to hold down the lid, as kanika.[67b] Such long, slow, enclosed cooking resulted in the retention and permeation of the flavour of all the ingredients; it could also be used to perfume a dish with any desirable flavour, say that of camphor or clove (*see* cooking; fumigation).

E

eggs Some sort of taboo seems to have prevailed in Hindu India against the eating of eggs. In AD 716, Al-Masudi noted 'the prohibition of all kinds of eggs among the people',[118] and Father Sebastian Manrique, writing of Bengal in the mid-seventeenth century, says that eggs

were not eaten.[187A] Yet even the Buddha in the *Lankāvatara Sūtra*[25A] permitted his followers eggs, so they must have been in use, perhaps by the kshatriyas.

Some unusual egg preparations may be noted. A dish of minced meat and eggs is termed mussaman in the *Ain-i-Akbari*.[28] A baked dish of minced meat topped with beaten eggs yields the lagania-sheekh of the Bohri Muslims. Hyderabad has the nargisi-kofta, in which full-boiled eggs are coated with a layer of minced meat and fried. When cut into half, the golden yolk surrounded by the white and then the brown suggests the narcissus (nargis) flower, which grows close against the brown earth. Parsis bake eggs on a bed of various greens to give the generic dish akuri. An unusual egg preparation is the muttamālā (egg garland) of the Moplahs of Kerala. This is a chain-like string of egg yolks cooked in sugar syrup and then removed; frequently this is served with a snow-white pudding called pinnanthāp-pam, made by whipping the separated egg whites with the residual sugar syrup, allowing it to set, and cutting the mass into diamond shapes.

In the common view, the egg is perceived as a 'hot' food.

ekādashi The eleventh day of the lunar month, when Vishnu redeemed mankind; in gratitude for this, abstention is expected, especially from Vaishnavites. Only one meal is eaten the previous day, without either salt or vegetables, and only one evening meal with rōus fruit, but no rice, on the ekādashi day itself.

elephant The meat of the elephant could not have been common; which is perhaps why Xuan Zang, in the seventh century AD, lists it as a forbidden food.[19a] Ascetics in Buddhist times were noted as living on elephant meat.[6c] Tamil Sangam literature observes that the meat of elephants that had either been hunted or killed in battle, was dried and stored for consumption.[101]

elephant food yam *See* sūran.

elk Among items of the chase sent by Emperor Jahangir to Sir Thomas Roe (AD 1615–19) was 'a mighty elk' which he described as 'reasonably rank meat'.[19a] Perhaps this was a nīlgai or sāmbar.

etiquette of dining A brahmin householder followed a strict ritual at mealtimes. He would enter the dining-cum-cooking area, where a brahmin cook would have recently prepared a meal having observed ritual rules (*see* cooking). He would have had a bath, changed into freshly washed-and-dried clothes, and would be without footwear or head-gear. Food had to be eaten sitting on the floor, facing east, and never either standing or lying down. He was required to eat alone and keep total silence. His wife would eat afterwards, but it was his duty to ensure that all his dependants were fed. Any guest had a very special place, since feeding a guest was considered as meritorious as worshipping god or performing a sacrifice. Hospitality,

even to the basest caste, was one of the five duties of a householder. Some food had to be always set aside for feeding small creatures.

Morsels of food were first cast into the fire as a sacrifice to the fire-god Agni, brief muttered prayers (japa) and oblations of ghee (homa) were offered to the various deities, and oblations of water (tarpana) to ancestors. The leaf on which food was served was sanctified by sprinkling a few drops of water on it. When the food was served, a few drops of ghee were put on it to sanctify the meal. Only the right hand was used for eating, the left being reserved for lifting the tumbler of water, or for other baser functions of life. Food had to be broken up on the plate, never between the teeth, and eaten with the fingers.

Each item of food had its allotted place on the leaf. The six tastes had to be represented at every major meal. Generally, one started with a sweet item, followed by salty and sour items in the middle courses, and ending with items that were pungent, bitter and astringent. Another order, which could also encompass the six tastes, was to begin with foods to be chewed, and follow with foods to be sucked, foods to be licked, and sweets. After these lesser items would come boiled rice, then liquid preparations of vegetables and the like. The sixth course would be curd-based items, followed by milk-based desserts. After thoroughly rinsing the hands and mouth, a betel quid would end the meal. It was enjoined that the food eaten should suit the person's temperament and the season of the year. The amount of food eaten should be just enough to satisfy, and this quantity depended upon the digestive power of individuals.

A guest was expected to praise the food, show his delight in consuming it, and eat in a thoughtful frame of mind. He was never to commence eating before anyone else, or to rise from his meal when others were still eating. Both had to be done by common consent.

Concepts of ritual pollution pervaded the cooking, serving and eating of food. Saliva was highly polluting, so water had to be poured into the mouth from above using a tumbler. Water used for rinsing the mouth could not be swallowed and had to be spat out. Cross-pollination was guarded against by the use of disposable plates and cups made of plant leaves (*see* leaf plates and cups). Caste also governed pollution: food could only be exchanged among equals, given to lower castes and taken from higher ones.

Food governed every stage of the life cycle. A student who left home to reside with his teacher was subjected to numerous interdictions on foods that might raise his baser appetites. When slightly older, he was expected to beg for his food from families in the neighbourhood. A woman who had given birth was considered highly polluted, and was therefore not permitted to enter the

kitchen for a considerable period. After a death in the family, food was not cooked, and in particular the initial frying of spices in oil (baghār) prior to cooking the main material was forbidden; the family lived on austere food sent by relatives, and many auspicious foods (like milk and turmeric) could not be consumed till the period of mourning was over. Auspicious foods were likewise abjured at the meal served during the annual ancestral shrāddha ceremonies. [13, 22, 23, 60, 71]

F

falooda A rich drink, of perhaps Turkish or Persian origin, a favourite of Emperor Jahangir, and described as a jelly made from the strainings of boiled wheat, mixed with fruit juices and cream.[109] A simpler form of falooda, with a body of softboiled sago granules (replacing a type of soft seed that swelled in water), with added cream, fruit, jam and ice, was once an item served by Irani restaurants in India.

fasts Fasts or vratas rarely involve complete abstention from food. They usually require various degrees of abstentions of several kinds. Sometimes this may even take the form of using only pure ghee to induce pure, sattvik (q.v.) thoughts, or to replace sea salt with rock salt in domestic cooking. In some fasts, plough-grown grains like rice are abjured in favour of wild grains. In others, only restrictive boiled (kaccha) foods are permitted, and in some others only foods that have been cooked the previous day, which would normally be considered stale and not eaten. A common form of fasting is to eat only fruits, or to eat only before moonrise or only after sunset. Some element of deprivation is clearly the intention in observing fasts. Modern practices, like not eating a meal on a Friday or a Monday, or giving up a particular dish, may be dietetic in intention, but frequently have a ritualistic origin.

The *Bhāvishya Purāna* (first composed in 500 BC, with later accretions over several centuries) prescribes no less than 139 fasts in a year.[188] The eighth and eleventh days of the bright half of every month are ekādashi or fast days: the eleventh days are all sacred to Indra, the other days to various other deities.[189] Particularly important is Vaikunta Ekādashi which celebrates the redemption of mankind by Vishnu in his incarnation as Krishna; [190a] the previous day, a single saltless meal unaccompanied by any vegetables will be eaten, followed by a day-long fast and an evening meal of fruit and rōtis, but no rice.

Around AD 1000, five kinds of fasts are noted in north India.[191] Vara fasts are observed on week-days, the adityavaravrata to Surya being an example. The thithivratas are kept on certain days of the lunar month; there are a large number of these, Durgashtami and Krishna-janmashtami being examples. On certain days of

the lunar stations the nakshatra fasts are observed. Māsavrata fasts are observed in certain months, like Karthika, while sāmvatara fasts with restrictive eating could even spread from one ekādashi (q.v.) to the next, a whole year later. Day-long fasts commonly observed in orthodox homes, especially by womenfolk, are Ram Navami, Shivaratri, shankranthi and ekadashi.[191]

Al-Biruni, who spent thirteen years in India in the mid-eleventh century and observed matters carefully, noted five kinds of fasts among ordinary people.[189] Ekanatha was non-eating from one noon to another, upavasa from noon to sunset or to the noon of the third day. Kricchra was a certain sequence of fasting: from noon to the following evening, and then on the third day eating only what was received unasked and by chance. Paraka involved eating only once at noon for three days, at sunset for three more days and then fasting uninterruptedly for three whole days. Chandrayana was a fasting sequence of slightly increasing quantities of daily food (starting from nothing) for a fortnight, followed by a diminishing sequence for the next fortnight. Māsavāsa was interrupted fasting stretched over a whole month.[189]

Jains observe twelve pratimas or fasts, and abstain even from milk, curd, ghee, oil and sweetmeats.[138a]

As everywhere, Muslims in India fast during Ramzan, the ninth month of the Muslim lunar year, which falls around March. A meal, termed fatoor, is eaten before sunrise and another, sahoor or suhoor, after sunset. The latter frequently begins with a few dried dates, indicative of its middle-eastern origin. The French traveller-doctor, Jean-Baptiste Tavernier, refers to the 'great fasts' which Aurangzeb observed, which in his view contributed to his being 'lean and thin'.[117]

fats in cooking Fats are solid, and oils liquid, but the term fat is used generically to mean both. Ghee in the Aryan view was the supreme (almost the only) cooking fat: it was a product of the sacred cow, 'born of fire' and hence pure, and conferring purity when used. The vegetable oils used by non-Aryans were looked down upon; there were of course a large number of them, notably sesame, mustard, safflower and coconut. These were derived from their parent materials either by boiling with water, or by expelling under pressure in a ghani (q.v.). Almost certainly vegetable oils were in use in the Indus Valley, besides the fat from milk, and a variety of animal and fish body fats. In later times, both the production and use of vegetable oils tended to become regional: mustard oil was used all along the long Gangetic plain, coconut oil in the Chera area of the Tamil country (now Kerala), and safflower oil in northern Karnataka and southern Maharashtra, while sesame was grown and its oil used all over the country.

Fats have always had an important

place in Indian cuisine. The *Rigveda* mentions the deep-fried apūpa (q.v.) and the *Dharmasūtras* both the vataka (vadā), a deep-fried ball of pulse flour, and pārpatas (pāpads), thin pulse circlets deep-fried to yield crisp relishes.[6a, 6b] In Tamil Sangam literature (q.v.) occur the pan-fried dōsai and adai. The *Mānasollāsa* (twelfth century AD)[137] lists shallow-fried mandakas (which resembled parātas), pōlika (pōli, hōligē) wheat rōtis and suhali, deep-fried in oils and coated with fine sugar (the present chirotti?). Deep-fried pulse-based items were the vidalapāka (a blend of four pulses), a crisp-fried snack from urad dhāl termed gharika, and a dish of fried peas and cowpeas called katakarna. Pulse flours and grits shaped by hand and then deep-fried yielded the vatika (wadi, q.v.), purika (pāpdi) and parika (bōnda). The ghratapura was a wheat-fried item stuffed with sweet coconut shreds, madhusarika with honey and ghee, and pūpalika with jaggery.[137] Meat dishes that used oil in the making are listed by the medical authorities. Sushrutha[33] lists seven types of meat preparations, four of which use fat: meat cooked in ghee with sour materials like curd or fruit; meat cooked over a charcoal fire while basting with ghee; fried meat; and minced meat cooked with ghee, molasses and spices, that was used as a stuffing.[33] The *Sūpa Shāstra,* written in Kannada in the seventeenth century AD, refers to the shallow frying of vegetables like brinjals, (to give a bartha), beans, greens, etc., in ingenious ways and combinations.[67a, 67b] Shallow- and deep-frying is required in the preparation of sweet concoctions with a long history, like laddus, kēsaribāth, karaji-kāyi and athirasam. In fact, other than boiled rice and raw ground items like chutneys, raithas and fruit mixes, it would be difficult to find an Indian cooked item that did not use at least a modicum of fat at some stage.

In ayurvedic terms of rasa, fats are 'sweet' foods, as are cereals and pulses. Fats in general, and ghee in particular, are unique in that they mitigate all the three dōshas (q.v.), vata, pitta and kapha. Charaka[24] recommended the use of ghee in autumn, animal body fats in summer, and vegetable oils in the rainy season; but in general terms, the use of fatty foods should be minimal in autumn and spring, and reduced in summer. Sushrutha [33] noted that fried foods were difficult to digest, and urged moderation in the use of oil in the kitchen. No less than 60 oil-bearing vegetable materials are listed by Sushrutha, besides numerous animal fats, and the effect of each on the body is meticulously catalogued.[33]

feni Distilled liquor with a distinctive flavour developed in Goa by Catholic monks from the red 'fruit' of the cashew (q.v.) tree. Distilled coconut toddy is also sometimes loosely termed feni.

fenugreek The name *Trigonella foenum-graecum* means triangular

hay, a name given by the Romans considering how common the plant was in Greece.[192] Mēthi is native to a wide region in the Middle East, the Mediterranean, and hilly north-west India. The leaves are first mentioned in *Sūtra* literature, and both these and the small, hard, bitter seeds are used in cooking. The seed is a component of the Bengali mixed spice, pānchphorōn. In the ayurvedic system, the seeds are classified as having the bitter rasa tikta and, like several other bitter substances, are considered to be anti-diabetic.

fermentation *See* beverages, alcoholic.

Fertile Crescent A broadly crescent-shaped area of land straddling the Middle East from Turkey to Iran, which became the cradle of domestication of some of the most important food crops of the world. This includes cereals like barley and wheat, pulses like peas, Bengal gram, masoor dhāl and kēsari dhāl, vegetables like the radish, and oilseeds like the linseed and certain rape-mustard species.

festival and temple foods Most socio-religious festivals in India have an association with food. The sesame seed, considered highly auspicious, features in several festivals. One is the 'feast of the six sesamums' which is part of ekādashi (q.v.), and another is Naraka Chaturdasi which celebrates the defeat of Yama, the lord of death, by Vishnu.[193a] The coconut features in almost any religious or social function in India as an auspicious symbol. It even has a festival named after it, Nariyal Purnima, when coconuts are cast into the sea to propitiate the sea-gods before fishermen resume their forays, once the monsoon is over.[194a] Sweets for the festival are all based on the coconut: a sweet-stuffed nāriyal karanja, a paak of coconut shreds in thickened sugar solution flavoured with cardamom, and a sweet coconut rice bāth.

In Makara Sankranthi in January, sesame laddus are given to family members and friends with the words: 'Eat sweet sesame and speak to me sweetly.'[195a] At the joyous Holi festival in March, necklaces of yellow and white sugar medallions are given to children.[195b] The exchange of sweets is very much a part of Deepavali (q.v.) in October, with sugar-moulded animals given to children. Fried vadās made of pulses are eaten on Vataka Pournamasi, a practice that was noted even in 200 BC by Patanjali.[18] Pongal is a harvest festival of south India, when a pot of rice is put to boil in milk; cries of 'Pongal, Pongal' are raised when the pot is just about to boil over,[193b] the word deriving from the Tamil term for boil. A type of pōli (q.v.), the dry obattu, features at the New Year Ugadhi festival in Karnataka.

Each of the gods is supposed to relish a certain food, which is offered to them at their festivals. Lord Ganesha is frequently sculpted holding in his hand modakas, a sweet-stuffed rice envelope, which is his favourite food. In south India, laddus of sesame seeds substitute. Lord Rama, at any rate in

south India, is favoured with sweet fruit juices, and an uncooked dhāl preparation called kosumalli.

Temples prepare foods that are first offered to the presiding deity; having been sanctified, they are distributed as prasād (q.v.) to the assembled devotees. The Padmanabhaswami temple in Thiruvananthapuram has a special mixed vegetable dish, aviyal (q.v.), in which no mustard seeds are used, and the Ganesha temples of Kerala serve the unniāppam, spongy brown fried pieces of a mixture of rice powder, banana, jackfruit and jaggery. The panchamrita (crystal sugar, honey, ghee, cardamom and several fruits) of the Muruga temple on the Palani hills is a prasād that keeps fresh for several weeks.[196] A giant spiced idli is the speciality of the great Vishnu temple at Kanchipuram,[387] while special to the Vishnu temple at Srimushnam is a confection from the sweet korai root (*Cyperus rotundus*) held to be dear to Varaha, the boar incarnation of Vishnu. Laddus made of urad dhāl are served as prasād at the great Venkateshwara temple on the Thirupati hills, and over 70,000 are made every day. Enormous quantities of nearly a hundred items of food of all kinds are made daily for sanctification, distribution and sale at the great Jagannatha temple at Puri in Orissa.[197]

fig The true fig, *Ficus carica* or anjir, is native to the Mediterranean. It is not mentioned in early medical literature, and there is even a record of Bindusara, son of Chandragupta Maurya, writing to Antiochus in Greece for figs.[198] However they did eventually come to be grown in India, notably in Pune, where Smyrna white figs are grown. It is thus appropriate that the colonial administrator, Monstuart Elphinstone, had for lunch 'a few sandwiches and figs and a glass of water' while fighting the Peshwas in Pune.[103b] Other types now grown are the bronze Brunswick and the purple Partridge. Some travellers have reported having seen figs in India, like Amir Khusrau in Delhi in about AD 1300[199] and the Rev. Patrick Copland in Surat in the mid-sixteenth-century.[88c] The Mughals attempted to graft the fig on mulberry trees.[27]

Figs are dried in the sun, pressed flat when still soft, and the discs strung on some strong vegetable fibre for transport and sale. They are popular for breaking the Ramzan fast.

Small, fig-like fruits are borne by at least five *Ficus* species, including the banyan (*F. benghalensis*) and the peepal (*F. glomerata*). Though insipid and dry, these are popular with birds and small animals. The Jain community is expressly forbidden to eat figs, collectively called udumbara.[138A]

fire Sparks from spontaneous friction, or forest fires, must have brought to the attention of early man the use of fire for cooking. The Peking cave in China, which was in use by man 500,000 years ago, shows evidence of the use of fire for roasting meat.[200] The first true clay cooking pot came into being very much later, in about 5000 BC.[200]

Fire was integral to Aryan concepts of cooking, the two major divisions of which were cooking without and with fire (*see* cooking). The latter was of course the bigger category, and had two sub-divisions, cooking with ghee and without it.[22, 23] Ghee, the fire-derived product, was the supreme Aryan cooking material.

Firewood, charcoal and dung cakes were the major sources of heat. Vedic sacrifices involved cooking (q.v.), for which ritual implements of strict shapes and sizes were specified.[65, 66] For raising a fire a spindle called arani, worked with a length of string, was used. A wooden device called upavēsana was used to remove embers, a vessel called sata to carry them, a poker, dhrsti, to stir the fire, and tongs called parista to lift vessels from the fire. The Sangam literature of south India mentions friction devices made of wood to raise a fire, censers called tadavu and indalam to hold embers, and pokers (nelikol) to rake the embers afresh. In a home, a perpetual fire was kept going in a pot called kumpatti, with a stick called sulundu, sometimes tipped with sulphur, stuck in it.[69]

The digestive principle, by which food is broken down and then absorbed, was also referred to as fire (agni). There is a major agni, jathara, and twelve other minor ones, and good health depends greatly on a smooth and strongly functioning agni. Agni is strongest in winter, and at a low ebb during summer and the rains.

Apart from its relation to food, fire in the Hindu belief is the supreme purificatory force, which is invoked in worship, in sacrifice, and in every ritual, including cremation.

fish The use of fish in India is ancient and well documented. The prehistoric Bhimbetka cave paintings show fish being speared .[140, 141] The Indus Valley sites have yielded fish hooks and bones in abundance,[187b] as have the slightly later south Indian excavations. The Greeks noted an enormous amount of fish at the estuary of the river Indus.[40b] Arab visitors record that fish was eaten by Jats living near Cambay,[8Ba] and Chinese pilgrims note that fish was eaten fresh, and sometimes salted.[19a]

In the Tamil Sangam period, the meenavar (meen was a Tamil word for fish that entered Sanskrit) were coastal dwellers, and fish like varal, aral, horned valai and prawns are mentioned, [101] while salted fish was even exported.[83] In Vijayanagar, Nuniz noted the availability of fish in large quantities.[8Bh] Bernier observed in Bengal 'fish of every species, whether fresh or salt, in profusion'.[19b] Bābar wrote: 'The flesh of Hindustan fishes is very savoury, they have no odour or tiresomeness.'[146]

Little is said in historical works of ways of cooking fish. The *Naishada Charita*, a late work of about AD 1200, mentions a 'broth of fish',[6k] and a twelfth-century work, *Samaraich-chakaha*, directs that the skin of rohu fish be peeled off, the fish marinated in asafoetida and salt, and then dipped in turmeric water before being fried.[190]

Current regional cuisines illustrate

the approaches in India to cooking fish. Bengali food, and especially that of eastern Bengal, has lightly spiced, liquid preparations called māccher-jhōl, and more heavily spiced ones, like steamed māccher-paturi. Fish is obtained from big rivers, estuaries and tanks, with hilsa, rohu, bhekti, mangor and tapsee as favourites. Even the brahmins of Bengal eat fish (*see* beef), as did the great spiritual leaders of Bengal, Ramakrishna Paramahamsa and Swami Vivekananda.[90] In Orissa, a morning meal of boiled rice covered with water and kept overnight, is eaten with fish,[201] and in Assam, a favourite curry is an alkaline salty extract of banana roots cooked with fish.[115] Kerala is a fish-eating state, and the Syrians there have a deep red fish curry cooked with the sour kokum fruit (kodampuli), and another sweet-sour dish cooked in coconut milk with tender mango pieces. Oily fish are frequently grilled in their own fat. Goa has the golden caladine curry with turmeric, a green-masāla mackerel, and the roe of the kingfish, lightly salted and fried, as a breakfast delicacy. The Kodavas of Karnataka state cook a maśs of tiny whitebait fish, called koylay-meen, bones and all, to a dry, spicy dish. Kashmiris cook fish with lotus roots (nedr), while a garlic-flavoured fish dish is called gardmuf. Parsi cuisine has two unusual fish preparations. One, called patra, is fish in a thick, strong masāla steamed in a banana leaf packet, and the other, patia, is pomfret cooked in a dark vinegar sauce. The poisson capitaine of Pondicherry is a dish of steamed fish served with mayonnaise and garlic paste. Fried fish frequently figured at an English breakfast in India, as did a kedgeree (q.v.) (khichdi) of rice and fish.

Past literature makes occasional mention of both dried and salted fish, with an added tamarind dressing noted in Tamil literature.[19a] In colonial times, the salting of fish was extensively carried out on both the east and west coasts, and attempts were made by the government to improve hygiene and quality.[119g] At Independence, some 200,000 tonnes of dried and salted fish products were being exported annually from India.[119g]

In the Indian medical view, fish are anupana or water dwellers. Their flesh is sweet, fat, carminative and heavy. They help to reduce kapha, but depress the digestive fire, and are hence best consumed during seasons when, or by those in whom, the digestion is strong. Freshwater fish are fattening and leave no residue, and sea-fish are muscle builders.[24, 34]

foot pounder *See* dhenki.

fowlers Vedic literature describes how punjistha (fowlers) waited at the edges of a lake or pond and trapped wild fowl with nets, or with their feet, using birds calls, decoys and camouflage headgear to approach and trap their prey.[13d] Even in the early seventeenth century, nearly three millennia later, Joannes de Laet[202] writes that

Indians 'show great cunning in catching water-birds; for they take a skin of a bird of the same kind as they wish to catch, and stuff it so skilfully that it seems like a real bird; then they immerse themselves in water up to the neck, cover their heads with the sham bird, and then make their way into the flock of wild birds, which they catch by seizing their feet below the water'.[202] Bows and arrows, and falcons, were used to bring down birds in flight. There was always, it would appear, a ready elite clientele for wild fowl and game.

French bean *See* sword bean.

French cuisine An amalgam of French sensibilities and the Indian environment gave rise in Pondicherry to a distinctive cuisine,[203] which however remained localized. Three forms of bread are the crisp pain sec, the stick-like baguette and the soft, crescent-shaped croissant. A spiced pork liver paste constitutes pâté, laced with some Bourbon; jambon is pork cooked in beer and then smoked; and boudin and saucisse are spicy, pork-based sausages. Beef is fileted and roasted, or diced to make a ragôut stew with vegetables. Stuffing with minced beef gives a tomato farcie, and boulette consists of fried minced meat balls. Steamed fish smeared with mayonnaise and garlic paste constitutes poisson capitaine, and fish croquettes are fried after being rolled in an egg-breadcrumb mixture. Gateau mocha is a sponge cake with coffee cream and rum; there is a crème caramel custard, and another custard with grated nutmeg called flanc.[203]

fruit Fruits that are either indigenous to India, or have been here since recorded history, include the bēr (*Zizyphus* spp.), pomegranate, āmla (*Emblica officinalis*), sweet orange, nārangi, lemon, lime, mango, sugar-cane, jāmūn (*Syzygium cumini*), phālsa (*Grewia subinequalis*) and grapes, with the coconut, banana and jackfruit as essentially southern entities. The minor fruits from ancient times include the bilva or bael (*Aegle marmelos*), figs of the banyan and peepal, tendu (*Diospyros melanoxylon*), karaunda (*Carissa carandas*) and kamrakh (*Atropa carambola*). Among the later arrivals were some forms of the apple, the mulberry, peach, pear, plum and apricot; many of these were not of high quality but were improved by grafting in Mughal times. A wave of immigrant fruits came in after AD 1500 from South and Central America, like the papaya, sapota, guava, pineapple, the sītaphal group (*Annona* spp.) and the avocado (*Persea americana*), while from China came the litchi (*Litchi sinensis*).

In terms of food, fruit falls into the category of items called phala that are not cultivated using the plough, in contrast to foodgrains, and indeed phal is the common spoken term for fruit.[22] It is a commodity that can be bought and sold; but when brought into the kitchen area and peeled or skinned, fruits become ritually pure and therefore restrictive (*see* cook-

ing).[22] In the Jain (q.v.) view, fruits plucked from a tree can be eaten, but not those that have fallen down; also, very small, seeded varieties like the fruit of the fig family could harbour animal life and are forbidden.[138] Sushrutha prescribes fruits as the first item in a meal, and in practice this could comprise a first round of fruits to be chewed, like the pomegranate, grape and bēr, and a second of fruit to be sucked, like the sugarcane, dates, oranges and mangoes.[6k] Fruits in ayurveda are sweet and sour, heavy and cold. They are recommended for dyspepsia, and dried fruits are 'cold' foods with a highly alkaline reaction in the body.

Fresh fruits are of course enjoyed as such for their taste, flavour and texture, or are converted into juices for use as beverages (q.v.). Historical Kannada literature refers frequently to seekharanē, a class of ripe mixed-fruit mixtures.[51] A fruit like the mātulunga (*Citrus medica*) could be stewed to remove the acidity, and then boiled in buffalo milk with sugar and cardamom.[51] In current practice ripe mashed bananas are converted into a dessert, koālē-puttu, by steam cooking them in Kodagu, and a similar process with jackfruit yields the unni-āppam in Kerala.

Fruits could be employed in items served at a meal. Green mangoes sometimes serve as a souring agent in cooking fish. Another common souring agent all along the west coast of India is the kokum fruit (*Garcinia indica*), which goes into Kodava and Goan pork and fish preparations. Cooking both meat and vegetables in the acid juices of fruits was a common practice all over India in the past; the *Mānasollāsa* describes yams thus cooked as pralēhaka.[186] Ripe wild mangoes of a distinctive taste are cooked in buttermilk in Kodagu into both a liquid curry and a thicker relish, mangay-kari and mangay-pajji, respectively.

Fruit was traditionally preserved in India in the form of spicy pickles of, say, the mango, lime, citron and so on, with sweet-sour flavouring in Gujarat. With the Muslim Unani medical tradition came the murabba (q.v.), in which fruits were preserved in a thick sugar syrup, with spices like ginger and cloves added for flavour. It is probably these which are referred to as preserves by Bernier in Bengal around AD 1660.[19b] The British colonial took a liking to these sweet chutneys (q.v.) and murabbas (q.v.), and their manufacture developed into a sizeable industry, with exports, in the year of Independence, of about 3000 tonnes of murabbas, and an equal quantity of chutneys, sweet-spiced Indian and western-style fruit drinks, jams and jellies.[119c]

Fruits were also preserved by dehydration: grapes give rise to raisins and sultanas, figs to discs, apples to rings, dates to compressed, seedless masses, and mango juice to chewy slabs (called ām-pāpad and āmras). These were not however major enterprises, and indeed raisins and dried figs were mostly imported.

In the past, a major use of fruit was to ferment it to obtain alcoholic beverages. Charaka has a long list of fruits used for this purpose, which included the sugarcane (and its products molasses and jaggery), grape, mango, woodapple, date, bēr, banana, jackfruit and pomegranate.[24] Sometimes very sweet dried fruits like raisins and dates were added to soften and sweeten both undistilled brews and distilled liquors (*see* beverages, alcoholic).

fruit drinks *See* beverages.

frying Copper frying pans have been found in Harappan sites,[164] and these were termed pravani in later Sanskrit literature.[51] In the *Rigveda*, there is mention of apūpas being deep-fried in ghee (ghrtavantam) and in the *Dharmasūtras*, deep-fried vatakas (vadās) are mentioned.[6a, 6b] Later apakva, based on the word pakva for cooking in general, came to mean frying. The modern Hindi terms, all based on Sanskrit, for the frying of spices is baghār, for shallow meat frying bhunāo and for deep-frying in a vessel, talna. Frying is perceived as an auspicious act, and is not allowed in a house of death during the mourning period.

Fried meat occurs repeatedly in old Tamil literature as thāllita-kari. Another word for such meat is porikari, where pori signifies fried (*see* fats in cooking; cooking; bēsan).

fumigation An ancient cooking technique, fumigation is utilized, for example, in the *Mānasollāsa* [49] to perfume a dish with the desired flavour, for example that of ghee, or cloves, or camphor. These ingredients are placed in a small container (a katōri, or an onion skin, or a piece of tile), which is then placed in a hot cooked dish, and the dish kept covered or sealed. Fumigation is called dhuanār in Hindi.

G

game, wild There is extensive evidence that India was at one time under heavy forest cover. Indian literature is replete with people being banished to the forest, with wandering ascetics living on wild foods, with āshrams of hermits located in thickets, and with feats of archery involving game. Forest trees like the ashoka (*Saraca indica*) which are now restricted to the lower Himalayas and hilly terrain elsewhere, are depicted in early Mathura sculptures (600 BC–AD 600). Foreign writers also vouch for widespread afforestation. Xuan Zang, in the seventh century AD, records traversing thick forest tracts before reaching both Kalinga in Orissa, and Varanasi on the river Ganga.[203] Around AD 1616 Edward Terry declared: 'The whole country is as if it were a forest, for a man shall travel no way but he shall see them.'[27]

And these forests abounded in game. In about AD 1660 Niccolao Manucci travelled from Surat to Burhanpur (where Aurangzeb was holding court). 'The road,' he wrote,[55]

'passed between sturdy and pleasant woods, peopled with many varieties of animals of the chase . . . without hindrance (I) killed whatever I wanted, there being no scarcity of things to kill.' Mughal paintings frequently depict the emperors on hunts, and Sir Thomas Roe records being sent game by Jahangir, on one occasion 'a mighty elk' (perhaps a nīlgai or sāmbar) and on another a wild boar.[29a]

Deer meat was a favourite all over the country. While in exile in the Dandakaranya forest, Sita was frequently brought deer by Rama and Lakshmana, which she cooked along with rice and vegetables to yield māmsabhutadāna.[81] Other game mentioned in the *Rāmāyana* are the hare, hedgehog, porcupine, tortoise and iguana.[109] In the *Mahābhārata* too, the Pandava princes, while in the Kaniyaka forest, ate deer of many kinds. Food served at a picnic feast in their happier days included 'large haunches of venison boiled in different ways with spices and mangoes, and sprinkled over with condiments'.[58]

Early Tamil literature of between the third and sixth centuries AD abounds in references to wild game. The wild boar, rabbit and hare were trapped using dogs and nets.[61] Captive boars were fattened with rice flour and kept away from the female to improve the taste of the flesh.[61] A dish of 'iguana red meat, big with ova resembling chank shell (conch) beads' is noted with a gourmet's eye.[101] Game birds mentioned are the quail, peafowl and parrot.[204a] A king is mentioned as feeding his guests with the 'rich roast flesh of lampreys' and the fat of turtles.[204b]

The medical authorities recommend as food innumerable animals of the chase as well as game birds.[24,33] Jangalavāsa (deer meat) and its sauces were considered particularly nourishing and balanced, and were accordingly recommended for consumption every day. Other game meats rated highly were those of the hare, tortoise, parrot, quail, partridge, peacock and alligator (gōdha), while the pigeon, porcupine and jackal also find mention.

Two types of meat were recognized.[34] Jangala regions are hilly and arid; these harbour animals of eight kinds, one example being creatures who live in burrows and caves. The flesh of all jangala animals is lean, sweet and light (in ayurvedic terms); it stimulates the appetite and regulates all the three body dōshas (q.v.), in particular a reduced vata condition. Animals and birds from anupana terrain, which is forested and wet, have flesh that is fatty, sweet and heavy (in ayurvedic terms). They are recommended only for certain individuals, and during seasons when the digestive power is particularly strong.[34]

Ganges water The sacred river Ganga (Ganges) is believed to flow from Shiva's matted locks, and has for Hindus a special sanctity. Thousands bathe in it every day for

purification, and most Hindus try to do so at least once in a lifetime. Many homes keep a vessel of Ganges water to be given to a dying person as the last ministration. Indian rulers with access to the river, like Emperor Harshavardhana at Kannauj, which lies on it, used only Gangajal for ablutions and cooking. Even the Portuguese physician Garcia da Orta, who from AD 1534 spent some 35 years in Goa and Bombay, claimed to have proved on himself the medicinal efficacy of Ganges water.[130c]

Muslim rulers likewise set great store by it. When Muhammad binTughlak shifted his capital from Delhi to Daulatabad around AD 1340, Ganges water was brought to him by runners from some 1500 km away.[26Bh] Akbar termed it the water of immortality, and according to the *Ain-i-Akbari*, 'both at home and on his travels he drinks Ganges water. For the cooking of food, rainwater or water taken from the Jamuna and Chenab is used, mixed with a little Ganges water.'[28] In Agra and Fatehpur Sikri this water came from Sarun, and when in Punjab from Hardwar. Jahangir continued these practices and was very particular about drinking only the water of the Ganges. Even Aurangzeb, according to his physician Francois Bernier, 'keeps in Delhi and Agra kitchen apparatus, Ganges water and all the other articles necessary for the camp.'[29b] His contemporary, Tavernier, muses that 'considerable sums of money are expended to procure Ganges water' and that 'by many it is constantly drunk in view of its reputed medical properties'.[26Bb]

During colonial rule a British physician, C.E. Nelson, noted that the water on ships taken from the river Hughli in Calcutta (as the Ganges is called there) would remain fresh all the way to London, but returning ships were obliged to replenish their English water en route.[206]

Numerous experimental studies have shown that Ganges water drawn above Hardwar, where it enters the plains, has an unusual capacity for self-purification, and is exceptionally lethal to bacteria and cholera germs. Organic pollutants discharged into the river were removed 10 to 25 times faster than in any other river in India.[206] Riverbed samples taken from the Ganges destroyed bacteria in the laboratory within a fortnight.

There appear to be four causes for this activity. One is the presence of bacteriophages which are lethal to many organisms; mosquitoes, for example, will simply not breed in Ganges water. Secondly, the river absorbs oxygen from the air with great efficiency.[206A] The next is the presence of heavy metals with known bactericidal properties, like copper, iron, chromium and nickel. Copper vessels are commonly used in India to store boiled drinking water. The fourth reason for the prolonged keeping quality of Ganges water is believed to be the presence in it of minute quantities of radio-active minerals such as Bismuth-214, one

of the decay products of Uranium-238. Sadly, however, recent studies have shown that below Hardwar the water of the great river has now become so highly polluted as to be even unsafe for human consumption.[206]

gardens, floating These are unique to the lakes of Kashmir. They consist of water weeds bonded with lake mud, on which are grown cucumbers, melons, tomatoes, radishes and mint, which are collected using boats.

garlic *Allium sativum is* a very ancient material, probably native to Afghanistan.[7p] Clay models of the bulbs have been found in pre-3000 BC Egyptian tombs, and in mummy stuffings. The high-born Aryan despised the garlic as a food of the natives (mlecchas) and foreigners (yavanas, q.v.), and it was forbidden on ceremonial occasions. In fact it is not even mentioned in Sanskrit literature till the *Charaka Samhitā* (say *c.* 200 BC).[6k]

Medical authorities have given the garlic considerable importance. Charaka classes it under harid, along with the onion, radish and ginger. In the Bower manuscript (q.v.), a major topic is the medicinal value of garlic.[207] It is believed to possess five of the six rasas or tastes of ayurveda; only the sour taste is missing, because of which the garlic earns its Sanskrit name rasona (lāsuna).[34] It is thus versatile in aligning humoral imbalances. Because of its aphrodisiac qualities, garlic is not allowed in the food of adolescents, widows and those under a vow or on fast. Even rajasic (q.v.) types could get overexcited through its use, while sattvik (q.v.) types avoid it. In fact the two Chinese pilgrims, Fa Xian in the fifth century AD and Xuan Zang in the seventh, state flatly that the use of garlic was little known, which would have been true in the Buddhist circles in which they moved.[19a] Those addicted to opium, Father Monserrate noted, avoided garlic, onion and oil, and ate only pulses or sweet food before passing into a heavy sleep.[106c] Garlic was of course a valuable spice for discriminating users; thus the *Mānasollāsa* describes its presence in an elaborate dish of sheep mutton, and another of roast pork, meant for royal consumption.[137]

gāyal A bovine, *Bos frontalis*, the meat of which is commended in the *Vishnu Purāna* (third/fourth century AD) as being very meritorious to serve at an ancestral shrāddha ceremony, the others mentioned alongside being the meat of the hare, hog, goat, antelope, deer and sheep.[38]

ghani A mortar-and-pestle device made of stone or wood that uses a perambulating animal to extract oil under pressure from oil-bearing seeds, or materials like copra.[208] It is mentioned as thaila-pēshana-yantra by Panini in about the sixth century BC, and appears to have developed from two crushing devices for extracting soma (q.v.) mentioned in the *Rigveda*. One is the ulūkhala-musāla (mortar and pestle), and the other is a set of grinding stones, called

grāvan. Words in several spoken languages, like ghavan in Marathi for a stone mortar, ghatani in Gujarathi for a mill, and ghatanika for a heavy club in the *Rāmāyana*, besides inscriptional evidence, all seem to suggest that ghana, later ghani, was a colloquial word for the oilpress. It is also called kolhu, which again is probably derived from ulūkhalika, meaning grinding. The Tamil word chekku for the oilpress is from the Sanskrit chakra, meaning revolving, by way of the Pali chakka. The *Manusmriti* and the *Arthashāstra* list a number of Indian oilseeds crushed in ghanis.[208]

The word thaila comes from the Sanskrit tila for sesame seed, and originally meant sesame oil; later it became generic for all vegetable oils, with suitable appellations. The oilmiller was a telika (Hindi teli) or chākrin. Among the guilds (shreni, q.v.) of craftsmen were those of oilmillers, which were later demarcated into two: one of lowly artisans, and the other of rich merchants who traded in oilseed products.

In south India, again, the term for sesame oil, ennai, became generic for all liquid oils, while nai was used for a semi-solid fat, such as ghee.

Not many old ghanis have survived. At a park in Dwarka, in Gujarat, a number of stone mortars have been assembled from the surrounding districts. Though labelled as soma-crushing devices, these appear to be old stone ghanis, which one authority dates as from between the first and the second centuries AD.[111f] There is a sculptural panel of a stone chakki drawn by bulls in the twelfth century AD temple at Darasuram near Kumbakonam, in connection with the tale of a Shaivite saint who offered his own blood when oilseeds for crushing were not available.[222] A historic chekku, one that was drawn in Coimbatore jail during the political incarceration of V.O. Chidambaram Pillai, has been transferred to Madras for display as a memorial.[208] As a political prisoner sentenced to hard labour in the cellular jail on the Andaman Islands, V.D. Savarkar was forced to draw a ghani, which is now on display in the museum there.[223]

It was only in 1930, when the All-India Village Industries Association was formed in Wardha with the backing of Mahatma Gandhi that the ghani received critical attention. The best features of various regional designs were put together and tested by building models, to yield the Maganvadi ghani. This incorporated improvements which, Gandhiji wrote, 'have lessened the labour of both men and animals who work at the ghani and at the same time have improved the output of oil'.[209] Further improvements led to the Wardha ghani of 1943, and improvements in design continued to be made even after Independence.

At the turn of the century, almost the entire oil needs of India were produced on 400,000–500,000 ghanis scattered all over the country. At Independence, this number

remained essentially the same, but the outturn of oil from them had halved, because oilseeds were also being absorbed by the mechanized sections of industry.[209]

The nutty flavour of sesame oil, the fragrance of coconut oil and the pungency of mustard oil are at their best in ghani-expressed oils. Early in the twentieth century, a metal ghani with a metal pestle was devised, first called a chakkar (from chakra) and later a rotary. Batteries of such rotaries run on electric power were installed in factories, producing oils with the characteristic flavours on which their marketability then depended.[169c]

ghee *See also* cooking; fats in cooking; frying.

Butter (q.v.), itself obtained by the churning of curd (q.v.), is boiled down with constant stirring till all the water has evaporated, and heating is continued till a pleasant cooked flavour emanates. The product is allowed to stand for a while, then decanted or filtered through muslin, to remove sediment. Hot ghee is frequently served at the table; Annaji, a Kannada poet, refers to 'freshly-made ghee that flashed in (leaf) cups like amber'.[67b] On long standing, ghee tends to separate into a mass of grains in a liquid medium. Cow ghee is yellow in colour, and buffalo ghee cream-coloured.

Ghee in India has always been regarded as the supreme cooking fat. The Aryans would countenance no other fat than ghrta (another name was sarpi), though numerous vegetable oils were in use by other strata of the populace. Two highly auspicious ritual beverages had ghee as a component, madhuparka (q.v.) and panchagavya (q.v.). Examples of shallow and deep frying in ghee abound in Sanskrit literature (the apūpa is ghrtavantam, ghee-fried, even in the *Rigveda*),[6a] in Tamil literature (as nai), and in cuisines all over the country (*see* frying). Both the Sultanate court in Delhi, and the later Mughal kitchens, employed ghee extensively; the *Ain-i-Akbari* (AD 1590) records that ghee for Akbar's kitchen came from Hissar.[28]

Indian cooking distinguishes between restrictive kaccha boiled foods, and fried pucca foods that have wider scope for cultural transactions (*see* cooking).[22,23] Even the stage of contact of the ghee in the sequence is sometimes critical. Thus to make kshīrika (kheer), a pucca fried food, the rice must first come into contact with the ghee, before milk, sugar and fire enter the picture. If rice is first boiled in milk, and ghee and sugar added later, the resulting dish is doodhbāth, a kaccha restrictive boiled food. In fact, cooking with ghee, and cooking without ghee, are major sub-divisions of cooking with fire. Ghee is itself already cooked and ritually pure, and cooking with it is a ritually superior act. Even when sitting down to a meal, a few drops of ghee will first be sprinkled on the rice as a purificatory measure.

In ayurvedic terms, ghee is a 'sweet' food; it is strengthening, aids

digestion and tempers the over-activity of all the three bodily dōshas (q.v.).[34] It acts quite powerfully on the mind, improving the memory and intellect. It is a pure, sattvik (q.v.) food, which was listed by the Buddha as one among those 'full of soul qualities'.[25A] Thus in the Bengali *Chandīmangala* (sixteenth century), Lord Vishnu, a sattvik type, is given food cooked in ghee, while Lord Shiva, a choleric tamasic (q.v.) type, gets food cooked in pungent mustard oil.[89] Charaka recommends ghee for cooking in the autumn season. The qualities of ghee made from various animal milks are listed: sheep milk ghee is easily digested, ghee from mare milk stimulates the digestion and pacifies kapha, and ghee from human milk improves the eyesight and acts as an antidote to poisons.[34] Ghee kept between 10 and 100 years, called kumbhāghrta, and that kept over 100 years, called mahāghrta, are powerful tonics, which reduce fever and have rejuvenating properties.[34]

Ghee seems to have been a regular export item from India. In the first two centuries of the Christian era, it was exported as butyron to Rome for use by the wealthy in cooking and domestic sacrifices.[86b,101] Around AD 1680 Fryer remarks that in Bengal 'butter (almost certainly ghee is meant) is in such plenty that although it be a bulky article to export, yet it is sent by sea to numberless places'.[20b] In the decade before the Second World War, 1500–2000 tonnes of ghee were exported annually from India.[119c]

ginger This is an ancient material, with names in Sanskrit that are borrowed from even earlier usage (*see* adhrak). Both the green and dry forms of ginger, adhrak and sunthi in Hindi, are still in active use. They are viewed somewhat differently in ayurvedic terms. Dry ginger is simply pungent, while the green material is considered both pungent and sweet, though both have a sweet after-taste.[325] While sunthi or dry ginger is light and oily, adhrak is considered heavy, drying and penetrating.[34] Green ginger boiled with milk and sugared is a household remedy for colds and chills. A piece of fresh ginger, placed with some salt on the dining leaf in south India, starts the meal and stimulates the process of digestion.[34]

Buddhist monks, as noted by I Ching[6g] in the fifth century AD and Xuan Zang[8Aj] in the seventh, were served fresh ginger with salt to begin the meal at the great monastery at Nalanda. Edward Terry[80A] noted in the Mughal period that the food of the poor was often no more than boiled rice with a bit of ginger. Being an underground product, ginger is not used by Jains.

Almost every visitor to south India remarks on the abundance of pepper and ginger, particularly in the Kerala area. Soon after their arrival there, the Portuguese set up the *Carriera da India* to organize exports, and even a single cargoload included, among other spices, no less than 28 tonnes of ginger.[326]

Ginger has always found use in the spicing of beverages. The three medical authorities[24, 33, 77] employ it to spice both classes of fruit beverages: the lighter panaka juices drawn from sweet fruits, and the thickened sādhava products.[6f] Spicing curd products with green ginger is almost the norm. The *Mānasollāsa*, written in the reign of King Someshwara [49] in the twelfth century, has buttermilk spiced thus, and the practice continues in every home. A pacchadi of ginger paste in curd is used in the Karnataka area; a composite dish of curd blended with rice is also seasoned in this way; and dahi-vadā contains small wedges of green ginger.

Today practically every curry of meat, chicken, fish and seafood in India includes fresh or dried ginger in the spicing, often in the form of a ground garlic-ginger paste. This too has a long history. The *Mahābhārata*[58] features a picnic meal in which meat dishes are simmered with ginger among other spices, and much later the Sultanate court in Delhi relished meat dishes cooked in ghee, with onions and green ginger.[53] Practically every recipe for meat dishes in the *Ain-i-Akbari* (1590) of Akbar's court[28] includes green ginger. Ground meat for stuffing, called vesavara in the *Sushruta Samhitā*, is flavoured with molasses, black pepper and green ginger.[33]

Ginger is also employed to give a certain snap to sweet items. The samyāva of Charaka,[24] a sweet concoction of fried wheat flour, is flavoured with cardamom, pepper and ginger.[6f] A preserve of ginger in sugar solution, made by the Portuguese living in Bengal, is noted by Bernier in AD 1665,[8Bd] and such morabbas (q.v.) were commonly eaten by the Muslims and had a medical connotation. Wedges of banana dipped in thick jaggery batter and deep-fried, a popular snack in Kerala, owe much of their appeal to the liberal use of ground ginger in the sweet coating.

ginger grass A perennial aromatic grass, *Cymbopogon martini*, of which there are two forms. Motia yields by steam distillation the superior rosha, palmarosa or lemon grass oil, and sofia the inferior ginger grass oil.[99e] The genus *Cymbopogon* has innumerable species, one of which yields citronella oil. Early Tamil literature refers to export to Rome of spikenard oil brought from the Ganges,[135] and Marco Polo, more than a thousand years later, noted that Bengal produced spikenard, besides ginger and sugar.[8Ah] It was Garcia da Orta who around AD 1560 first identified spikenard with the rōsha grass that grew along the banks of the Ganges,[130c] yet till even a century ago, George Watt was of the opinion that ginger grass and lemon grass oils were derived from different species. Rosha oil has mostly medicinal uses—as a massage in lumbago and a mosquito repellent, while ginger grass oil is used to perfume soaps, cosmetics, etc.

gluten A protein unique to the bread wheats (*Triticum sphaerococcum*), gluten is what gives wheat dough its sticky, rubbery and elastic quality. This is essential in the making of baked products from wheat, from a chapāthi to a loaf of bread, because it forms a radiating network that holds the starch in place.[210a] Washing wheat flour in a slow stream of water will leach out the starch and leave behind a rubbery ball of gluten. Isolated gluten can be used to strengthen low-gluten wheat flours, and it is the base of the chewy confection, sohan- halwā. In Mughal times the rich drink falooda (q.v.) seems to have employed isolated wheat gluten as a component, besides fruit juices and cream.[80A]

Goa, foods from An exceedingly ancient settlement, the name Goa can be traced in the Gubi of Sumerian tablets (2100 BC), the Gouba of Ptolemy, the later Govapuri and Gopapuri, and even the aboriginal Munda word Goen-Bab, meaning a ear of corn.[211] In 1510 it was captured from the Sultan of Bijapur by Alfonso da Albuquerque; the Estado da India was established, and lasted for about 150 years before it yielded first to the Dutch and then to the English.

Goa was the point of entry of numerous plant species brought in with commercial intent by Portuguese and Spaniards from South and Central America. One of these was the sapōta (cheeku), and another the cashew tree; the yellow-red 'fruit' (really the swollen stalk) of the latter is in fact called go-manga in Kerala, perhaps after its Goan source. The Indian mango (q.v.) was skilfully grafted to yield varieties with Portuguese names: Alfonso, Pairi (from Peres) and Malgoa. Around AD 1700, Niccolao Manucci wrote: 'The best mangoes grow in the island of Goa ..., I have eaten many that had the taste of the peaches, plums, pears and apples of Europe.'[8Bi] The doctor, Garcia da Orta, lived in Goa and Bombay for thirty-five years from AD 1534, and the Dutch botanist, John Huygen van Linschoten, for six years around AD 1580.

It was largely the Catholic monks of Goa who developed a cuisine which amalgamated Iberian with local (mainly Saraswath Hindu) sensibilities. Vinegar, an essentially European material (though not unknown in India), was made from coconut exudate and employed. So were chillies of various kinds. The periperi masāla uses the intensely red but mild chilli varieties grown in Kashmir, Goa and north Karnataka (where they are known as bedigē chillies).[212] Green chillies go into the cafreal masāla, and a fiery button chilli is used on occasion. Bread in Goa is based not on wheat, but on rice flour; some molasses are added, the mass is leavened with palm toddy, and glazed before baking with egg white, to yield bolē.[213] Saanas is a round steamed bread of rice-pulse flour fermented overnight with toddy. From wheat is made a hard, ring-shaped dinner roll called kankod, and

a whorl-like pastry, barki. Pork is variously employed.[336] One form is the distinctive garlic-flavoured Goa sausage, called chourico or chourisam. Sorpotel is a curry of the blood, meat, liver and fat of pork with both tamarind juice and vinegar, and in vindāloo, a more liquid curry, the souring agent is the dried rind of the kokum fruit. Pork assado is marinated in feni. Pork cooked with beans gives feijoada. Pork can be salted, and then pickled. Fish and prawns are abundant, and distinctive dishes have been developed. A curry of salmon is cooked with the sour-sweet kokum fruit; a yellow fish curry that uses turmeric is caladine;[212] and the pomfret is cooked with coconut vinegar after being stuffed with periperi masāla of red chillies, pepper, cloves, ginger and garlic. The roe of the kingfish, lightly salted and fried, is a breakfast delicacy.[213] Mackerel is cooked in a green cafreal masāla of green chillies, coriander and spices. Prawn balchão contains vinegar and lots of chopped onions that give it a sweet-sour flavour, and it keeps well enough to be bottled for use as a pickle. Shallow-fried chicken or meat constitutes chacuti.

Quite distinctive are the desserts of Goa. Bibinca is a concoction of egg yolk, flour and thin coconut milk which is built up in layers and baked repeatedly; it is then turned upside-down to cool. Spaniards carried a baked dish of this name to the Philippines and even to Hawaii,[214] though the layered baking appears to be distinctive of Goa. The flour of the Bengal gram, bēsan (q.v.), is baked with grated coconut and sugar to yield Dos de Grão (this last is the Portuguese word for pulses, which in English became gram), which has a thick, firm crust and a chewy centre.[212] Baked yams are coated with melted jaggery; mangada is a moist, chewy mango cheese, and perada a brown guava cheese. Pastry is frequently decorated with strips of tender coconut meat dipped in melted sugar, a unique Indo-European combination. Dodol is a soft fudge of jaggery. Monks were responsible, in Goa as in Europe, for developing alcoholic beverages, like the distinctive-tasting feni distilled from cashew 'fruits' and coconut palm toddy, imbibed directly, or as cocktails of many kinds.

goat Goat meat was the major meat commodity consumed in 1947, followed by that of the sheep; one-third of the goat population was slaughtered every year, which meant that it was raised entirely for meat.[119g] Prime Indian breeds are the Jamna Pari, Bar Bari and Jodhpur.[145a]

From Vedic times the goat has been a prime animal for sacrifice,[11] and a large goat was the basis of the elaborate ajamēdha (q.v.) sacrifice, with special cauldrons (ukha) and utensils.[66] Its flesh was rated highly by medical authorities,[81] and being an animal easy to rear and a diligent forager, the goat went on to become the prime source of meat in many poorer countries, till warning notes were sounded of environmental

denudation caused by roving goat herds.

Jahangir recorded his observations on the wild goat thus: 'I found the flesh of the mountain goat more delicious than that of all wild animals, though its skin is exceedingly ill-odoured, so much so that even when tanned the scent is not destroyed.'[8Be]

In more recent times, Mahatma Gandhi drank only fresh goat's milk, and a milch animal even accompanied him when he went to the Round Table Conference in London in 1931.

gonkuru The tall plant *Hibiscus cannabinus* is also called nalita and ambādi in India, and kenaf and mesta elsewhere. Its fibre is twisted into ropes, and the sour leaves are eaten, notably as a pacchadi in the Andhra region. The plant has long been acclimatized in India, though it is of West African origin.[7f, 32c]

goose Not a common flesh in India, though it finds a place in the long list of edible meats noted by Charaka.[8l] Domingo Paes[21a] noted the availability in Vijayanagar of 'lake birds that look like geese' (perhaps the wild form was used all along). In colonial times, geese, along with hens and ducks, were fattened domestically for eating, especially for a Christmas lunch.[336]

gourds Trailing or climbing plants, whose fruits are characterized by a hard skin, soft body and numerous seeds, and commonly called gourds, melons, pumpkins. Early Vedic literature describes them as being grown on the 'banks of rivers, beaten by foam',[16a] and they have always been raised before the onset of the rains on the dry beds of rivers and tanks.

Gourds and pumpkins are largely used as vegetables in India, while the melon group serves both as vegetables and fruit. Charaka describes a generic term asūta for gourds and radishes preserved in vinegar.[6f] In moist Bengal and Assam, where gourds are plentiful, they are cooked as bhāja (vegetable curries) and in innumerable combinations: with other vegetables, with the pulse chana, and with prawns and fish.[9o] The ash gourd is candied to yield pēthā, and several pumpkins yield halwās.

Several gourds are of considerable antiquity in India and Africa. The common cucumber, khīra in Hindi, chirbhita, urvāruka and sukasa in Sanskrit, and botanically *Cucumis sativus*, is undoubtedly Indian, with a bitter wild ancestor, *C. hardwickii*, still found in the Himalayan foothills.[7n] The *Cucumis* family also includes some melons. Of these *C. melo*, the popular kharbuza or musk melon, probably originated in Africa, but 'exploded in terms of variety when it came from Africa to India'.[7n] Three other varieties are also edible: var. utilissimis, the khākri; var. agrestis, the meki or tak-mak; and var. mormodica, the kachra or phunt.[99F]

Other melons (q.v.) belong to the *Citrullus* family, the best known being the luscious water-melon or

tarbuz, *Citrullus lunatus*, of Indo-African origin. It is an ancient fruit, and its Sanskrit name kalinda is believed to be of prior Munda origin.[6j] The delicate vegetable tinda is *C. lunatus* var. fistulosus. Another long-known species is *C. colocynthis*, the Sanskrit indrayan or mahendra-varuni, whose spongy, bitter fruit is sold in a dry form for use as a rather drastic laxative.

The *Cucurbita* species carry such common names in America as pumpkin, squash, marrow and gourd. All originated in the New World, with progenitors even 10,000 years old,[7n, 215a] yet some of them have Sanskrit names of considerable antiquity.[2o] This may be due to the ability of gourds to float in seawater without losing seed viability when making the crossing from continent to continent. The red pumpkin, or winter squash of America, is urubaka in Sanskrit, and lāl-kumra, kaddhu and kumbala-kāyi in other Indian tongues: round to oval fruits, bluntly ribbed, with yellow to reddish flesh, which are cooked as dry or wet curries. Two other winter squash species, *C. moschata* and *C. maxima*, are known in India as kaddhu, kumra, dūdhi and dumbala: some smooth and oblong, others fluted and either spherical or flattened. Yet another winter squash in America[334] is the cushaw, *C. mixta*, known as the African gourd in India (suggesting a two-stage transfer to India). It is a fruit of large size with a swollen peduncle at the top; it takes a high polish and is frequently employed to make bowls of Indian musical instruments like the thānpura and vicchitra veena. *Cucurbita pepo*, the summer squash of America, is a green, deeply ridged, pear-shaped vegetable known in India as safēd-kaddhu, kumra and surai-kāyi.

The term gourd has increasingly developed a more restricted connotation that embraces four plant families. Under *Benicasa* falls *B. hispida* (pēthā, pushnikāyi, ash gourd, in Sanskrit kushmānda), perhaps native to Malaysia.[7e, 31b] It is cooked as a vegetable, and soaked in strong sugar solution to yield the brittle confection, pēthā. The genus *Luffa* has three species with old Sanskrit names, and is therefore probably indigenous.[31i] These are *L. acutanula*, the ridged-gourd, *L. acutanula* var. amara, and *L. aegyptiaca*. All of them carry slight variations of the same Sanskrit name kōshataki (which is first mentioned in the *Arthashāstra* of *c.* 300 BC), the Hindi word thorai and the Tamil pīrkankāyi. The last of these is used as a vegetable and also yields on drying the firm, net-like loofah sponge.

Apart from *Luffa*, the two other gourd families are *Trichosanthes* and *Momordica*. *Trichosanthes dioica* is the Sanskrit putulika, Hindi parwal and Bengali potol, a small, tender vegetable. *T. anguina* is the long snake gourd, chachinda in Sanskrit and pottalakāya in Telugu, while *T. cucumerina* is the Hindi rambel; the first two are probably of Indian origin, the last perhaps Malaysian.[7e] In the

Momordica group, the best-known is *M. charantia*, the bittergourd or karēla, in Sanskrit karavella, which is first mentioned *c.* 400 BC in early Jain literature.[31c] A smaller version of the bittergourd is *M. dioica*, kaksa or golkandra in Hindi, and palupakayi or tholpāvai in Tamil; an even smaller knobbly kind is *M. tuberosa*, kadavanchi in Hindi and athalaikāyi in Tamil, which is pickled, or sun-dried and fried to crisps. The bhat-karela or kakrol of Hindi is *M. cochinchinensis*, also used as a vegetable.

Thus the extended gourd family is important in the diet of the people of India (*see also* melons; pumpkins and gourds).

grafting Grafting is listed in the *Kāmasūtrā* of Vatsyayana (fourth century AD) as one of the 64 arts.[27] The *Brhat Samhitā* of Varahamihira, dated AD 505, describes grafting very explicitly as 'smearing a branch with cowdung and transplanting it on the branch of another; or it may be done by cutting off the branch of a tree and transplanting it like a wedge on the trunk of another tree'.[21b] The trees amenable to grafting are listed as the jack, banana, lemon, citron, pomegranate, grape, jasmine and some others, but not the mango. The Portuguese in Goa in the sixteenth century used grafting to produce excellent and stable varieties of mango, like the Alfonso (*see* mango). Jahangir rewarded good horticultural results, including those derived from grafting, obtained at the royal gardens in Kashmir, Punjab and Agra, and Shahjahan later extended these benefits to non-royal plantations. Grafting was applied to cherries and apricots in Kashmir, and to oranges and mangoes in Bengal. Figs were grafted on mulberry trees, peaches on plum trees, apricots on almond trees, and vines on apple trees.[27]

gram The Portuguese word for grain, grão, was first applied in India to the Bengal gram or chickpea, and later applied generally to all pulses; thus arose the terms red gram, green gram, black gram, horsegram, etc. Its use is unknown outside India.

granary A large structure, generally state-maintained in India, for the storage of grain for extended periods in an edible condition. Small village or home devices for grain storage are considered under agriculture.

Mass storage of foodgrains in the Indus Valley (2500–1500 BC) was on a scale and of a sophistication hardly ever matched later in India's history. The granary in Harappa took the shape of a mud platform, 52 by 42 metres in size and 1.2 metres high, on which stood two identical granary blocks, reach 17 by 6 metres, placed 7 metres apart and with walls 3 metres thick. Each block had 6 chambers, with corridors between them which opened only on to the outside, and were approached by a short flight of steps. Each chamber was divided into four storage spaces by full-length walls. The floor rested on sleepers, and air could circulate in the void below and enter the chamber for

aeration through small triangular vents. The granary faced the river, along which the grain possibly arrived. The sheer size of the granary almost certainly implies state authority.[63b, 164, 167b, 217, 218]

All that remains at Mohenjodaro is a massive brick platform with steep sloping sides, on which stood the bases of some 27 storage blocks arranged crosswise to facilitate air circulation. The granary itself was probably built of wood, and has disappeared. Halfway up the brick platform is an unloading platform with niches, on which carts bringing in grain could well have stood while being unloaded.

At Lothal, the storage unit appears to be more in the nature of a warehouse which overlooked the dock. It took the form of an enormous mud platform, 34 by 45 metres and 3.5 metres high, on which rested twelve square brick pallets, 3.7 metres each way and 1 metre high. A great deal of melted material was found inside, suggesting that the original wooden chambers had burnt down.

A row of circular platforms, each 3 metres across and constructed of bricks placed on edge fanwise in circles, was found near the granaries at Harappa and Mohenjodaro. Fragments of husk, barley and burnt wheat were lodged in the crevices, and a central hole indicates where the pounding was carried out using wooden pestles, an operation still in vogue all over India. Perhaps a special class of workers carried out these operations.[79b]

In later centuries, only oblique references occur to state granaries for food storage. Writing in about AD 1340, the Moroccan, Ibn Battuta, says:

> The wall that surrounds the city of Delhi is unparalleled. The width of the wall itself is eleven cubits (5 meters) and it contains also stores for provisions, which they call granaries . . . Grain keeps in it for a very long time without going bad or becoming damaged. I have seen rice brought out of one of these stores, and although it had gone black in colour, it was still good to the taste. I have also seen kudhru millet (kodra, *Paspalum scorbiculatum*) taken out of them. All these stores had been laid by the Sultan Balban ninety years before.[8Bh]

It is again Ibn Battuta who records that when famine broke out, Muhammad bin Tughlak ordered that every resident in Delhi, rich or poor, free man or slave, should be given a 6-month supply of foodgrains from the state granary at the rate of about 675 grams a day.[54] Considerable stocks must have been held for this to be feasible.

grape Grape seeds have been found in extremely ancient Tertiary deposits 10–15 million years old. Even in the fourth millennium BC the grape-vine was cultivated in the Middle East.[7q] Practically all the 10,000 grape cultivars now known are mere ecovariations, and not different species, of a single wild form, *Vitis vinifera*.[7q]

Indian grapes however have certain characteristics that indicate introgression from other species. Besides *V. vinifera* itself, there is

V. indica, a climber with indifferent fruit, whose root-juice is used as a blood purifier.[99g] India also has *V. labrusca* or the fox grape, which is well represented commercially by the long-standing Bangalore Blue, with its thick skin and abundant, slightly acid juice, popular as both a table and a wine grape. At one time the sturdy and very old wild fruits of Kashmir were classed as *V. latifolia*, but these have now been reclassified as *Ampelocissus latifolia*, which is described as a woody, climbing shrub that is highly resistant to pests and other diseases, and bears edible fruit.[99g]

Thus the grape must have been known at least in the north of India since very early times. Rather surprisingly it receives only late mention in Sanskrit, as drāksha and mrdvika, by Panini and Charaka, in *c.* 500 BC.[6j] The Buddhist stūpas at both Bharhut and Sanchi, dated about the second century BC, show beautiful carvings of vines and grape bunches. Varahamihira in the *Brhat Samhitā* (*c.* AD 500) mentions the grape as one among several fruits that can be grafted.[216]

Grape cultivation in India seems to have moved in cycles. Its use for making wine and spirits may have led to its suppression by puritanical rulers. Xuan Zang notes in the seventh century AD that grapes were brought (presumably to Nalanda in Bihar) from Kashmir.[100a] Around AD 1340, Ibn Battuta notes that, except for being grown extensively in Daulatabad, and available in Delhi, grapes were rare.[8Bf] Firuz Tughlak took steps to grow seven kinds of grapes near Delhi, and with abundant production its price fell to just five times that of the same weight of wheat.[219a] Babar encouraged grape production, and by the time of Akbar, grapes had become plentiful.[2e] Writing about Agra some thirty years later, Francisco Pelsaert of Holland noted that 'great and wealthy amateurs there plant in their gardens Persian vines which bear seedless grapes, but the fruits do not ripen properly one year out of three'.[8Bd] Bernier in AD 1660 rejoiced in the meadows and vineyards of Kashmir,[8Bd] and Thevenot shortly thereafter remarked on the 'passion for the cultivation of the grape', possibly as a result of Portuguese encouragement.[2e] In his memoirs, Jahangir noted that two crops of grapes had been raised in Malwa,[41] and yet by the end of Aurangzeb's long reign of fifty years in AD 1707, grape production in India fell into a decline from which it never really recovered till the remarkable resurgence of the 1960s.

Grape products like the raisin and sultana have always been imported into India under the name kishmish, which is actually the name of the grape grown in Quetta and Kandahar. In India, the production of alcohol by fermentation has generally favoured starchy materials and palm exudates, though a variety of fruits have also been used. Madhīra appeared to have been a grape-based wine (*see* beverages, alcoholic).

grapefruit One of a very large citrus family (q.v.), *C. paradisi* is a cross native to Thailand between the mosambi (*C. sinensis*) and *C. grandis*, the shaddock or pomelo, called in India chakotra and bombelinas.[2g] It was taken to the West Indies and called grapefruit, and introduced by the surgeon-general of the Napoleonic army into Florida in the USA.[215b] A hemisphere of grapefruit sprinkled with sugar is frequently a starting course at dinner in America.

Greek contacts Indian connections with Greece go back a long way. Even the Old Testament carries some words which indicate an Indian origin. One is the word rice, oryza (also now the botanical genus, Indian rice being *Oryza sativa*). which is believed to have originated in the Tamil arisi. The other is peperi (pepper) from pippali (in both Tamil and Sanskrit), and yet another is kārphea or karpion for cinnamon, from the Tamil karuva or karappa-pattai. From Greek these terms passed into other European languages.

Two other Greek words for oil, elaion and oleum, also appear to have an Indian connection. This link is by way of the words ell and enn (which were old Tamil names for sesame seed) through the term ennai, which first meant sesame oil, and later all liquid vegetable oils. Yet another connection is seen in the term yavana-priya, 'beloved of the Greek', employed in Sanskrit for pepper.

It has been suggested that the symbols found on ancient Harappan seals, which in one interpretation are numerals, were later adopted in modified form as numerals by the Greeks and others.[220]

Direct contact between Greece and India was established with Alexander's incursion in May 327 BC, followed by a stay of eighteen months. Even before this, stray and often inaccurate information on matters Indian was published in Greece. Ktesias (416–398 BC), a court physician and historian, based his *Indika* on talks that he had with Persian officials who had visited India, and with seven Indians, including two women, whom he met at the Persian court at Susa.[156] He recorded that both sesame and coconut oils were in use, and that there were palms in India with huge fruits (coconuts). The hill people dried a sweet fruit called siptakora (perhaps the bēr, q.v.) in the manner of raisins, and packed them in hampers to be traded for grain with those living in the plains.[18b, 156]

Aristobolus of Kassandrelia, who accompanied Alexander, described rice as a strange plant, which was sown in beds and stood in water.[18c] He observed that the food of two brahmin priests cost them nothing, since they simply helped themselves from food stalls to whatever they liked, for example to abundant cakes of sesamum and honey (probably til laddus made with jaggery). Nearchos of Crete was a senior leader who commandeered Alexander's return

fleet (largely built in the Punjab area) down the river Hydaspes (Jhelum) to the sea and thence to Iraq. He mentioned 'a reed tree' (the sugar-cane) that 'produced honey without the association of bees' and the abundance in India of medicinal plants and herbs.[18c] There was, he noted, both a summer and a winter crop, and this 'great facility of the soil' was attributed correctly not only to the rains, but to the abundant silt which the rivers brought down from the mountains. A grain, a little smaller than wheat, and repeatedly called bismoron by the Greeks, was first threshed and then roasted 'in a common enterprise', following which each took his requirement for the year.[18c] Describing the visit by Apollonius of Tyana (born *c.* 295 BC) to Takshashila, Philostratus, another of the party, noted that while the king did hunt, this was solely for exercise; he gave away what he killed, and lived on vegetarian food.[221]

Megasthenes was appointed around 330 BC by Seleukos Nikator (who had been defeated by Chandragupta Maurya) as ambassador to the latter's court at Pataliputra. Though only fragments of his *Indika* survive,[198] much more is preserved in numerous quotations by later writers like Diodorus, Strabo, Arrian and Pliny. He wrote:[19c]

Indians live frugally, especially when in camp . . . they lead happy lives, being simple in their manners and frugal. They never drink wine except at sacrifices. Their beverage is a liquor composed from rice instead of barley, and their food is principally rice-pottage . . . They possess good sober sense: for instance, they eat always alone and they have no fixed hours when meals are to be taken by all in common, but each one eats when he feels inclined.

Here he adds that 'the contrary custom would be better for the ends of social and civil life'. Megasthenes noted that agriculturists formed the bulk of the Indian population. Of them he writes:[18d]

They are a most mild and gentle people. They never resort to the cities either to transact business or to take part in public tumults. They are exempted from all military service, and pursue their labours free from alarm. Indeed it often happens that at the same times and in the same part of the country, the army is engaged in fighting the enemy, while the husbandmen are sowing and ploughing in the utmost security . . . The entire land is the property of the King, to whom they pay one-fourth of the produce as revenue.[18d]

Indian agricultural practices came in for admiration; he expressed surprise that the water-wheel (ash-manchakra), with clay pots attached, could raise water by 20 cubits (about 10 metres) to the river brim, and a further 10 metres to inundate the fields.

Of the upper classes Megasthenes wrote:[198]

When Indians are at supper, a table is placed before each person, this being like a tripod. There is placed upon it a golden bowl, into which they first put rice, boiled as one would boil barley (the Greek dish chondros), and then they add many dainties according to Indian recipes.[198]

The emperor Chandragupta Maurya, according to Megasthenes, lived in great state.[19a] 'The palace is adorned with gilded pillars clasped all

around by a vine embossed in gold, while silver images of those birds which most charm the eye diversify the workmanship.' And elsewhere:[8Ai] 'In the Indian palace there are wonders with which neither Memnonian Susa in all its glory, nor the magnificence of Ecbatana, can hope to vie.' The *History of Alexander the Great* written by Quentin Curtius-Rufus (*c.* 30 BC–AD 30) has a description of Chandragupta Maurya at dinner:[19a] 'His food is prepared by women, who also serve him wine, which is much used by all Indians. When the King falls into a drunken sleep, his courtesans carry him away to his bedchamber, invoking the gods of the night in their native hymns.' Six centuries later Athenaios reported that among the presents that Chandragupta Maurya in Pataliputra had sent to Seleukos Nikator in Greece were certain powerful aphrodisiacs. The same writer also records[40a] that Bindusara (Chandragupta's son) wrote to Antiochus asking for three articles, to which the latter replied: 'We shall send you the figs and wine that you had requested, but Greek laws forbid a Sophist to be sold.'

Alexander's Indian visit continued to be a subject of fascination in Greece. Strabo relates how from Takshashila he received 3600 oxen and 10,000 sheep, and how in the country of the Ashvakas he captured 20,000 oxen of a fine breed which he sent back to Macedonia.[18d, 100b] There are accounts of the return fleet that was built in India, for which suitable timber was available in the mountains in 'unlimited quantity', according to Diodorus Sicilus (*c.* 85–15 BC).[40a] The *Anabasis of Alexander*,[40b] written by Arrian (Flavinius Arrianus, *c.* AD 96–160), mentions that Alexander's return fleet 'numbered collectively eighty 30-oared galleys, but the whole fleet, including the horse transports and the small craft and the other river boats . . . did not fall short of two thousand'. Going down the Indus, 'he came to a large lake formed by the river in widening out . . . to give it the appearance of a gulf of the sea . . ., for salt-water fish were now seen in it of a larger size than anything in our sea'.[40b] Another curious bit of information from Arrian was that elephant wounds were cured in India by the application of roast pork.[103]

The sixth of Pliny the Elder's (AD 23–79) thirty-seven books, called *The Natural History*, is on India, and is based again on the lost writings of Megasthenes.[18d] Pliny describes several Indian trees: the fig (banyan) which produced small fruit, the pala tree (?) with wonderful sweet fruit called ariena, favoured as food by sages, and the 'olive' tree (perhaps the bēr), the pepper plant and the grape-vine. He describes shipbuilding in Trapobane, as Sri Lanka (Tamraparni) was referred to by the Greeks.[18d]

In about AD 40, a Greek sailor, Hippalos, discovered for the West the monsoon winds to and from India, thus briskly fanning the trade that

already existed between south India and Rome. Shortly thereafter, a remarkable book, *Periplus Maris Erythraei* (Circumnavigation of the Erythrean Sea) was written posthumously by a Greek sailor posted in Alexandria.[40d] It graphically des-cribes from personal knowledge how India's 'seas ebb and flow with tides of extraordinary strength, which increase both at new and full moon, and for three days after each, but fall intermediately'. The *Periplus* lists exports as ivory from Dosarena (Orissa), muslins from Maisolia (Macchilipatnam), pearls from Korkai (Colchi) in the Pandyan kingdom, and pepper from Muziris (Cranganore) in the Chera kingdom.[224] The other items exported were spices, per-fumes, herbs and precious stones, in exchange for which was imported gold, silver, tin and lead, glass vessels, horses, coral, wine and linen cloth.[83, 103d] Fifty years later Ptolemy lists eleven ports on the coasts of India and thirty walled cities. All this is fully borne out by contemporary Tamil literature, which tells of 'Yavanas (Greeks) of fine physique and strange speech, whose well-built ships rode the waves of foaming rivers'.[72] These were loaded, it was noted, 'with different kinds of grain, white salt, sweetened tamarind and salted fish' (*Mathuraikkānchi*). There is mention of 'well-weighed goods in abundance being exported with the Tiger mark (of the ruling kings) impressed on them to recover customs duty' (*Pattinapālai*).[72] There was sesame oil and gold from Kongunadu, sandal-wood and betel from the west coast,[61] spikenard (ginger grass, q.v.) oil from the Ganges, diamonds, rubies, coral and tortoise shell, a black aromatic wood called aghil, camphor and salt.[135] Cloth was of a particularly fine kind, variously described in Tamil literature as 'webs of woven wind', 'sloughs of serpents', 'vapours from milk' and 'silk in the web'.[135] Though the word Yavana continued to be used, it would appear that trade in the first and second centuries AD was not with Greece but mostly with the Roman Empire.

green gram *See* mung.

green leafy vegetables These must have figured as food items in India from the very dawn of history, but can only be identified when recorded in the earliest Sanskrit literature. The Vedic corpus mentions patha (which could be *Corchorus capsularis*, later called pathua), varuna (*Crataeva nurvala*, Hindi barna), avakā (stated to be a Kashmiri pot herb) and lakshmana, described as a green leaf with red spots.[6a, 6j] Aquatic herbs also find mention, like the pushkarna (lotus) and the waterlily family (*Nymphaea*); four species of the latter exist in India, called in Sanskrit kumuda, pushkara, andika and shāluka,[6a] of which the seeds, carpels, fruit and tubers were all consumed. In the subsequent *Sūtra* period (800–300 BC) many more leafy vegetables were noticed. The watercress was mandukaparni (Hindi brāhmi, *Nasturtium officinale*) and the pigweed was vasthuka (Hindi bathua

saag, *Chenopodium alba*). The spinach, pālankya in Sanskrit and pālak in Hindi, is *Spinacia oleracea*, native to south-west Asia[7e] and known in India long before it went to the West. Other leafy vegetables mentioned are mēthika (Hindi mēthi, *Trigonella foenum-graecum*, fenugreek [q.v.] in English), and the Sanskrit sigru or shaubhanjana, the drumstick tree (*Moringa oleifera*, Hindi sājuna), whose leaves and long pods are still popular vegetables (*see* drumstick).

The trio of medical authorities, and especially Charaka, list numerous leafy vegetables.[6f] Tender leaves of certain trees, like the palm and bilva (*Aegle marmelos)* are edible, and the tender sprouts of the bamboo and the vetragra (Hindi bent or vetasa, *Calamus rotang*, also a cane) were considered delicacies. Leaves of several shrubs find a place: some of these are amaranths, tandulikaya (*A. spinosus*, Hindi kanta-chaulai) and anarisa (perhaps *A. cruentus*, Hindi chaulai); sarshapa (Hindi sarson-ka-saag, *Brassica napus* var. *glauca*); jīvaka, stated to be a Himalayan plant, perhaps *Pentapetes phoenicia*; and savarchela, a flowering plant.[6f] As is to be expected, many pot herbs noted in this period have a medicinal connotation. Two are of the *Cassia* family (to which also belongs the aromatic tejpat): chakramarda (Hindi chaksu, *Cassia absus*) and susa (Hindi kasaundi, *C. sophera*), while several are related to the popular vasthuka, like kutinjara (jangli-bathua) and javashaka (Hindi khat-pāpli). A medicinal slant also shows up in the changeri (Indian sorrel, Hindi amrul or chaupatia, *Oxalis corniculata*); lōnika (the common purslane, *Portulaca oleracea*, Hindi khursa or barālaniya); maruvaka (Hindi marua, *Meyna laxiflora*); javani (Hindi ajwain, caraway, *Carum carvi*) (*see* caraway) and kalashāka (Hindi karipatta, the curry leaf [q.v.], *Murraya koenigii*). An even greater medicinal value is ascribed to the jīvanti (which Charaka refers to as a superior pot-herb; it is the Indian sarsaparilla, Hindi magrabu, *Hemidesmus indicus*); satavāri (Hindi satavār, *Asparagus racemosus*); chitraka (Hindi chita, *Plumbago zeylanica*); and two members of the hogsweed family, punarnava (which is also its Hindi name, *Boerhavia diffusa*) and kathillaka (Hindi visakhapara, red hogsweed).

Tamil literature of between the third and sixth centuries AD mentions several edible leafy vegetables. Leaves of the chembu (the taro, *Colocasia esculenta*), kuppukeerai (*Amaranthus viridis*), munnai (*Meyna laxifolia*), vellai (*Cleome viscosa*) and vallarai (*Centella asiatica*, Asiatic pennywort) are valued mainly for their culinary rather than medical qualities.

Green leafy vegetables were best raised on low grounds, like the moist beds of lakes.[16a] They had the general connotation of being cold, 'sweet' foods that promote digestion,[34] with

specific therapeutic uses. Thus the changeri is active against dyspepsia, piles and anaemia, astringent and antiseptic; the lōnika is beneficial in matters urinary; and punarnava is very effective against dropsy and as a diuretic.[34]

While the Buddha praised the use of leafy vegetables as food,[25A] they are interdicted for Jain monks,[138] perhaps through fear of killing the minute insects they could possibly harbour.

Leafy vegetables are particularly popular in moist and fertile Bengal and Assam. Even Sushrutha mentions that in the Suhma country (Bengal), tender leaves were boiled, the excess water squeezed out, jeera and rāi seeds added and the mass shaped into a delicacy called sindhaki.[6f] A soup called kadha (kadhi?) was made using tender greens.[6f] Nalida (*Corchorus* species), the climbing spinach puin, colocasia leaves, amaranthus leaves and many aquatic plants are items consumed frequently. In the Bengali work *Chandīmangala* (AD 1589), which relates food to temperament, Lord Shiva, who is of a choleric temperament, relishes pungent mustard leaves, and a rich merchant's wife, a spoilt woman, is served with a variety of pot herbs.[89] In Punjab, sarson-ka-sāg (with butter) is served with makki-ki-rōti, made from maize, both 'hot' foods appropriate for consumption in winter.

griddle The Sanskrit kharpava, Hindi thavā and Kannada kavali, a thick, flat or slightly concave iron plate on which Indian rōtis are roasted. Clay and metal plates of this kind have been found in Indus Valley excavations, suggesting an ancient lineage for griddle cooking.

grilling Use of a wire network for cooking a dry dish directly over a flame is not common in Indian cookng, except perhaps for the dried meat of game, pork, deer, etc. Tandoor cooking (q.v.) is sometimes referred to as grilling.

grinding devices Neolithic times in India saw the use of simple stone units with a slight inward or outward depression, paired with a grinding stone (muller), which progressed from a simple, naturally rounded pebble to dressed convex or concave stones.[225,226] Two types of querns show up in the Indus Valley. One is more or less flat, and with it goes a cylindrical muller rolled with both hands. The other has a small circular depression, in which grains can be crushed with a rounded stone held in one hand. A flat, four-legged quern of the latter kind is depicted in Sanchi sculpture of about 250 BC.[227] A later type consisted of a cylindrical stone base on which revolved a heavy-domed stone, worked by two women with a stout pole that passed through two holes opposite each other.[227] Later, in about the early Christian era, the upper domed stone was replaced by a heavy circular stone with a central opening, which revolved on a firmly fitted central peg on the lower stone, and also had a short upright wooden peg on the periphery for movement.[217] This is the familiar domestic device for grinding grain.

Sanskrit literature provides further insights. The *Rigveda* (*c.* 1500 BC) describes two devices, both meant to crush soma juice (q.v.) for sacrifices. One consisted of a set (perhaps a pair) of grinding stones, and the noise of grinding was compared to the exertions of bulls and horses:

> Like strong draught animals who draw a cart,
> Bulls who wear the yoke and are dressed together,
> The stones emit bellows, panting and heaving,
> Then the sound of their snorting is like that of horses.

The second crushing device was the mortar-pestle, ulūkhala-musāla, which was presumably of shallow design. In course of time the stones came to be termed peshani or gharatta; the flat lower portion was the drshād, the upper the drshādputra or upala. Both devices are used in homes to this day. One is the flat grinding stone with a long, thick cylindrical muller, worked horizontally for grinding materials either dry, or with a sprinkling of water, and the other is the pot-like stone unit with a short, stout, upright stone that works in a circular motion for wet grinding (of an idli batter, for example).

The more capacious upright mortar, worked in a standing position using a long, stout, wooden pestle, is used mostly for dehusking or pounding grain rather than for grinding (*see* pounding).

In south India also similar grain crushers, milling stones, mortars and pestles have been found in neolithic sites of the second millennium BC.[228] Sangam literature in Tamil of between the third and sixth centuries AD employs the terms ammi, thiruvai, āttukal and kulavi for the flat grinding stone, which was often made in animal shapes, like that of the tortoise. The stone mullers that accompanied them were called puttil and vatigai.[69, 86, 102]

groundnut This popular nut, eaten directly and also used in cooking, is of surprisingly recent provenance in India. In 1850 there were just a thousand hectares devoted to the groundnut, but by 1895 this had gone up 70-fold.[57c] Production of nuts, which was 2.5 lakh tonnes in 1910, went up 6-fold in the next two decades, and at Independence stood at about 35 lakh tonnes. Most of it was crushed for oil, and groundnut oil had the major share in the total Indian production of vegetable oil. About a tenth of the produce is consumed as nuts.

Even ancient Peruvian tombs of 3000–2000 BC carry *Arachis hypogea*, of which two sub-species eventually arose, one an erect plant and the other a trailer. In India, four major kinds were soon recognized in the trade: Virginia, Valencia, Peruvian Runner and Spanish, respectively, all cultivated first in south India, later in Gujarat and thereafter in many regions. The large Brazilian groundnut may have entered the country via Africa, and the small Peruvian type from Manila or China, independently of each other.[2f, 229a]

guār *See* cluster bean.

guava The botanical name *Psidium guajava* reflects the Spanish name of the fruit, guajava.[215b] It originated in Peru in South America, as is evident

from remains dating to 800 BC, which have been excavated.[7e] Blochmann's English translation of the *Ain-i-Akbari* (AD 1590) has a suggestion that guavas were served at Akbar's table, but this could arise from an error in translating the word amrud used by Abul Fazl,[28] which even today stands both for the guava and the much older pear. Though as early as in AD 1550 Benzoni correctly describes the fruit in the east of India, the first unambiguous mention is by Fryer in 1673.[1t] Two other *Psidium* species that grow in India yield small edible fruit: the Guinea guava (*P. guinense*) and the strawberry guava (*P. cattleyanum*).[99h]

guest and host Guests had an honoured place in Vedic society, ranking below only the father, mother and guru. On arrival, a guest was ceremoniously received, given water to wash his hands and feet, and offered the ambrosial beverage madhuparka (q.v.).[13] In early Vedic times, if the guest was an honoured brahmin or a member of the royalty, a large bull or goat would be sacrificed in his honour, even if the guest was himself a vegetarian. Later this ritual became symbolic, and the guest was given a knife in token of the sacrifice, which he returned after a prayer. During the meal, the host had to be solicitous, either eating later, or finishing his own meal quickly, so as to rise early and look after his guests.[13]

In the *Manava Dharmashāstra (Manusmriti)*, a host is exhorted in these terms:[196]

> Let him, being pure and attentive, place on the ground the seasoning for the rice, such as broth and pot herbs, sweet and sour honey, as well as various kinds of hard foods that require mastication, and soft foods, roots, fruits and savoury and fragrant drinks.
>
> All these he shall present, and being pure and attentive, successively invite them to partake of each, proclaiming its qualities: cause them to partake gradually and slowly of each and repeatedly urge them to eat by offering the food and extolling its qualities.
>
> All the food shall be very hot, and the guests shall eat in silence. Having addressed them with the question: 'Have you dined well?' let him give them water to sip, and bid farewell to them with the words, 'Now rest'.[196]

Gujarat, food in Till fairly recently, in geological terms, Gujarat was connected by land with Africa. Stone Age cleavers and hand axes that go back 50,000 years and more, have been found there in comparative abundance.[142] Much later Gujarat formed part of the enormous Indus Valley civilization (2500–1500 BC, q.v.). Lothal and Rangpur were important settlements, in the excavations of which rice spikelets have been found.[85]

Many centuries later, Emperor Ashoka chose to set up one of his rock edicts at Girnar in Gujarat, which opens with the lines: 'No living being may be slaughtered for sacrifice; no festive gatherings (for the purpose) may be held. Formerly slaughter in the King's kitchen (that is, his own) was great, now it has almost been stopped.'[230] This seems uncannily appropriate, since Gujarat state now has the highest proportion, 69 per cent, of vegetarians of any state in India. Two major influences were at work. One

was the Jain community, which was bolstered by the powerful presence of the twenty-fourth and last thīrthankāra, Mahavira in the sixth century BC. Much later King Kumarapala, in the twelfth century AD, issued his own edicts, called amarighōshanas, banning animal slaughter,[81] while several Jain writers like Nemichandra (eleventh century), Hemachandra (twelfth century) and Asadhara (thirteenth century) exerted considerable influence. The second vegetarian impulse arose from Vaishnavite teachers like Vallabhacharya, who founded the Pushti-Marga sect in the fifteenth century. His second son, Vittalanatha (AD 1516–1586), spent considerable time in Gujarat, and one of his pupils was the saint-singer Surdas. Many vaishya traders turned Vaishnavite; one merchant prince of Surat, Virji Vora, and another of Ahmedabad, Santi Dasa, gave away large sums in charity to promote vegetarianism.

The *Bimalprabhanda* (*c.* AD 1200) of Lawanyasamay (quoted in Ref. 53), though written in Sanskrit, mentions such typical Gujarathi dishes as kūr (boiled rice) and karambho (curd-rice), pāpads and vadi, and a number of sweets like vedhami, khāja, laddu, sukhadi (from ravā), kheer and talwat (fried molasses).[53] Jain literature from the seventh to the fourteenth centuries AD has frequent references to numerous food items,[186] like dukkia (dhōkla, first mentioned in AD 1066), veshtika (vedhami), ghāri, chopada, vati, kacchra (kacholi), kosamri, pralēhaka (chatni), kshīraprakāra (chhāna), shikharini (shrikhand), sarkara (dūdhpeda) and shāskuli (sānkli). Rice items were karambho and sakthu (sathvo), and wheat items mandē, pahalika (khāja, pheni), phenaka (sutar-pheni), murmura (mumra), udumbara (pūranpōli), suhali and ghrtapūra (the juicy ghebar or ghevara of Surat, with its porous honeycomb texture, that is eaten soaked in sugar syrup).[186]

These works are in Sanskrit, but the *Varanaka Samuchaya* by an unknown author is a Gujarathi work of AD 1520.[136] This contains extensive lists of food ingredients and prepared items (all jumbled together, unfortunately) of Gujarat. Meals could consist of rice, jowāri, bājra (made into palev or palāo with mirch, ginger, turmeric, pipaliya and vasudiya), served with dhōkla, idari, khāndvi, raitha and pūran, the meal ending with dahi or chhās. Rice items are numerous and include several shāli rices (mahā, pancha-, pīlī-, rati- and thatia) and the curd-rice preparation karambho flavoured with camphor, cardamom, rāi, jeera, green ginger and asafoetida. Apart from the common dhāls are listed peas and vāli (hyacinth bean), and a pulse-based kadhi flavoured with asafoetida. Numerous vadās and their spicing are listed. The vegetables noted include many green legumes (vālōr, chaulai, guār, pāpdi) and fruit-vegetables (tindora, kankoda and thuraiya).

Distinctive to Gujarathi cuisine are certain rōtis, and fried snacks called farsan and nāsto. The khākda is very

thin, brittle and large, rolled out from a dough that is kneaded with milk.[231] The rōtlee is another very thin rōti of Gujarat. The vedhami is a circlet of spiced bēsan with a touch of sugar, which is rolled in wheat flour before it is baked on an earthen plate; it is described in the *Mānasollāsa* of AD 1130.[137]

A rich Gujarathi khichdi called lazizan, consisting of rice, pulses, ghee, spices and nuts, was a favourite with Jahangir on his days of abstention from meat.[80A]

Nāsto and farsan are classes of Gujarathi fried snacks, distinctive and never eaten together.[232] Nāsto comprises many types of fried crisp items that travel well in air-tight tins. One of them, ganthia, describes a class of bēsan-derived crisps, like the pāpri wafer, the solid cylindrical bhavnagri, the long, flat fofda and the slim and spicy masāla. Sēv is also made from bēsan, and fried crisp either as thick long strings, thin long strings or wafers. Chevda is beaten rice, deep-fried to crispness, and then mixed with salt, spices, groundnuts, almonds and raisins. A mixture of almost anything crunchy constitutes bhoosoo.[232]

Farsan consists of items that can be eaten as a snack, or as part of a major meal. The fluffy dhōkla is bēsan that is fermented with curd and then steamed, and khaman is a coarser version. There are numerous types of vadās. Khāndvi is a tender, rolled-up pancake made from bēsan batter rolled out extremely thin, and sprinkled with mustard seeds and green coriander sprigs. Bhajiyas denote deep-fried spice balls, and the delicate muthiyas are dumplings of bājra or other flour introduced into a dish of mixed vegetables flavoured with saunf and mēthi, which is then steamed and finally lightly cooked in coconut milk. Kachōri are deep-fried, vegetable-stuffed puffs, circular or crescent-shaped. Colocasia (arvi) leaves, coated with bēsan paste, steamed and lightly fried in the form of a roll, yield arvi-na-patra.

gulāb-jāmūn Balls of chhāna, or of khoa and paneer, kneaded using maida, deep-fried till dark brown on the surface, and then gently boiled in a medium-thick sugar syrup, sometimes flavoured with rose essence.

gūr *See* jaggery.

H

halāl *See* Islam and food.

haldi *See* turmeric.

haleem, harees (ā) Items of Middle Eastern origin, consisting of spiced, pasty preparations of ground meat and wheat. They were popular in the Sultanate and Mughal courts (being mentioned in the *Ain-i-Akbari*)[28] and are delicacies among Muslims in Hyderabad and elsewhere.

halwā An Arabic word, which when first used in English denoted a Turkish confection of ground sesame seeds and honey. In India it connotes

pasty or softly firm desserts made from a range of materials: wheat flour, wheat grits (ravā, q.v.), wheat strainings (*see* gluten) and vermicelli, Bengal gram flour (bēsan, q.v.), fruits like the banana and date, vegetables like the carrot and white pumpkin (dūdhi), and nuts like the almond (bādām, q.v.).

handa, handva A cooking pot, usually made of clay; the term is also used in Gujarat for a dish of mixed vegetables cooked in a clay pot.

health and food *See* ayurveda; dōsha.

hearth, domestic *See* cooking; chūlah.

hemp For hemp, *Cannabis sativa*, *see* bhang.

The sann(sunn)-hemp is *Crotolaria juncea*, whose stem furnishes a valuable fibre used for cordage, and which also bears edible flowers.

hen *See* chicken.

honey A tasty product made for their own purpose by honeybees, honey is a very ancient food. The Bhimbetka paintings in the caves near Bhopal, from about 6000 BC, show man in the act of despoiling bee-hives built on rocks.[141,233] The *Rigveda* (*c.* 1500 BC) has several references to honey. Honey is used to sweeten the fried barley delicacy apūpa; it is interdicted, perhaps because of a perceived aphrodisiac connotation, for students and widows; and an opinion is expressed that the honey from small bees (saragha) is superior to that from larger bees (arangara).[6a] Later, three types of honey came to be commonly recognized.[233] Maksika was honey made by the common honeybee, *Apis cerana indica*, itself called maksika. From the large black rock bee, *A. dorsata* or brahmara, came honey of the same name. Ksaudra honey was from the dwarf ksudra bee, *A. florea*.[233] Both Charaka and Sushrutha list eight types of honey, including the above. The others are pauttika (from the tiny puttika bee), chatra, arghya, auddhalika, and dala, all of which have been identified in modern terms.[15]

Even as early as in Rigvedic times, the Rbhu brothers are credited with building artificial hives of reeds and straw, in which were fixed sections taken from a natural hive.[233] A year later, four sections were removed and the rest left in. In later times, hives were kept in logs or pots in a horizontal position, or on four-legged stools (perhaps to prevent insects from intruding), or in a hole in the wall. This last procedure is still in use in Kashmir, both ends of the hole being stopped with easily detached covers.[234] When ready, the bees are smoked out, a few combs removed, and the ends replaced, when the swarm soon returns.

The *Mahābhārata* has references to bee gardens, apiary keepers and pollen-yielding plants, suggesting some degree of commercialism.[235] But in general, both in the north and south of India, honey was collected from natural hives for both sale and barter. The *Mahāvamsa* tells a tale of three brothers, two of whom collected honey for sale by the

third.[235] Bees-wax is known by the expressive term madhucchista (honey-residues) in the *Harsha-charita* of Bana.[235]

As a food, honey enjoyed enormous esteem. It was a component of the ambrosial panchamrutha and also of the ritual concoction madhuparka. A paramānna of boiled rice, milk, ghee and honey was the first solid food given to a child at the annaprasanna ceremony of weaning. Honey was by itself a relish, and down the centuries it was the sweetening agent of choice for the elite. After about 500 BC, sugarcane products became widely available, and honey is mentioned less frequently as a sweetener. The *Purānas* in fact do not mention honey at all.[6h] It is no coincidence that it is only in recipes found in the *Māna-sollāsa* of the twelfth century AD, written by a king, that honey is used to stuff wheat rōtis to give madhu-mestaka and madhushīrsaka, and to fill the pūpalika envelope.[137]

While the Buddha recommended honey as one of the pure foods, 'full of soul qualities and devoid of faults',[25A] the Jain canon banned honey 'since it was pressed out of the young eggs in the womb of bees, and resembled the embryo in its first stages of growth (yasashthilaka)'.[6h] The Quran lists honey as one item of food, along with dates, figs, olives, milk and buttermilk, with which to break a fast.[183]

The Sanskrit word madhu for honey later became generic for sweetness. Even so, in the ayurvedic view honey is classed not as a sweet but as an astringent (kashāya) material, energy-giving, cooling and a digestive stimulant.[34] It reduces kapha (q.v.) and with it obesity. Fat people are recom-mended honey and water for weight reduction, and it is best employed as a rainy-season food. For treatment of loss of appetite, debility and thirst, honey is added to a suspension in water of parched barley or rice.[33]

Honey being a valuable product, accessible in south India to mountain-ous people, the Kuruvar, it was a prime object of barter for produce from other regions in Sangam times.[39, 101] It was also converted into liquor and matured underground in the hollows of bamboo stems.[101] In Sanskrit literature there is mention of madhīra and madhvikāsava, wine and spirits of high quality derived from honey, to judge by their names; these liquors were permitted to kshatriyas who were not allowed spirits distilled from flour-based brews.[6b]

The collection and sale of honey, despite references to some degree of commercialization even in very early times, remained for centuries an un-organized, family activity. Just prior to the Second World War, the government of Bombay appointed a bee expert to train workers and set up apiaries in the Presidency, while the All-India Khadi and Village Industries Commission promoted efforts in the same area.[119h] In 1947, six bee-keeping centres with 68 registered beekeepers were function-

ing; the output in that year was only 74 kg, but just four years later, production had gone up 250-fold.[119h]

horse Indus Valley excavations show no evidence of horse saddles or clay representations of the horse, and the bones found are those of small, country-bred animals.[167c,218] The powerful equine that struck such terror into adversaries is associated[8Ag] with the conquering Aryans and their chariots (rathās), which later reflected a kingly ambience. The elaborate horse sacrifice (*see* ashvamēdha) culminated in the ritual slaughter of the animal and distribution of the meat for consumption among priests and partakers in the ceremony. But before long, horse meat was forbidden, as Xuan Zang noted in the seventh century AD.[19a]

Early European visitors like Hans Schiltberger (*c.* AD 1410)[29c] and Domingo Paes (*c.* AD 1520)[21a] express surprise that horses in India were fed with human foods like cereal grains and pulses. Rather strangely, fine breeds of horses were never developed in India; they were always imported, both in north and south India, from across land and sea borders.

horsegram Grains of kulthi, *Dolichos uniflorus*, have been found in later Indus Valley sites, in Daimabad (*c.* 1800 BC) and slightly later at Tekkalakota, further south.[32a] The word khalākula occurs in the *Brhadāranyaka Upanishad* (*c.* 1000 BC), while the term garmut which figures in the even earlier *Yajurveda Samhitā* has been identified as the horsegram.[6j] The first to use the word kulattha was Panini (*c.* 600 BC), and Sushrutha (*c.* AD 200) mentions a wild variety, vanya-kulattha.[6f] Archaeological findings in the Dekhan plateau indicate an early presence, and Sangam literature records that kollu was intercropped in agricultural sowings with the cereal varagu (*Paspalum scorbiculatum*).[83]

Soup extracts made from several pulses, which include the kulthi, were termed yusa during the *Sūtra* period (800–350 BC),[6h] and such soups are still popular as rasam in south India. Vadās made from the horsegram are listed in the Gujarathi work *Varanaka Samuchaya* of AD 1520.[136] As its English name indicates, horsegram is considered a superior fodder crop. In the Indian ethos, unlike several other pulses, it is not an auspicious food, and a sweet pāyasam of kollu is a common shrāddha food item.[71 196]

host *See* guest and host.

hotels The austere brahmin of Vedic and even of much later times would not even have considered eating at a public place, but other sections of society had less inhibitions. Even in early times eating houses were a common feature of town life, serving 'cooked rice and prepared food ready for eating, whose pungent odours assailed the nostrils'.[13c] In south India in the early centuries of the Christian era, eating out was much in vogue. In the town of Madurai we read: 'The hotels and restaurants are now, in the cool of the evening, crowded by

visitors who feast upon such luscious fruits as the jack, mango and banana, and on sweet candies, tender greens, edible yams, sweetened rice or savoury preparations of meat.'[5, 72] Plying their trade on the seashore were kaazhiyar and kuuviar, vendors of snacks like the āppam, idi-āppam, adai and moodagam.[3]

'hot' food *See* 'cold' food.

I

ice Evaporative cooling in really porous clay jars was the time-honoured technique of cooling water. In the *Harshacharita* (seventh century AD),[236] whey for use as a gargle by the king's dying father is kept 'in a new vessel besmeared with wet clay'. Also 'buttermilk was kept very cold (shishīrakriya) in pails packed with ice'.[236] This may have been brought, as it was in much later Mughal times, from Himalayan heights by river or overland. According to the *Ain-i-Akbari* (AD 1590): [28] 'Out of the ten boats employed for the transport of ice, one arrives daily at the capital (then Lahore, each being manned by four boatmen . . . twelve pieces of ten to four seers (a seer was about a kilogram) arrive daily . . . All ranks use ice in summer; the nobles use it throughout the whole year.' A perennial source close to Delhi was the mountain called Choori Chandni-ki-Dhar, near Kasauli. According to Abul Fazl, it was Akbar who introduced saltpetre for cooling water in India.[28] Travellers like Francois Bernier describe how 'the higher sorts of people' cooled Ganges water by pouring it into tiny flagons, which for the span of seven or eight minutes were placed in water into which three or four handfuls of saltpetre had been thrown.[29b] The British colonial in India in the eighteenth century did the same: 'Every family had its abdar, the servant who stayed up all night constantly moving an earthenware jug of water in a larger vessel containing saltpetre and water, which produced a chilled liquid by morning.'[237]

In 1775, an English judge recorded a description of ice-making in Allahabad by cooling water overnight during the three winter months, when the temperature was close to freezing but never below it.[238] Boiled water was poured a couple of centimetres deep into small, shallow, porous vessels; the latter were placed in shallow pits, well insulated at the bottom and sides, that had been scooped out in the ground in quiet and windless surroundings. Ice would form overnight, sometimes all the way through, and this was collected and stored in insulated pits.[238] The British expanded the technique, and a century later were making 23–29 tonnes in one night and storing collected material for use all the year round.[239]

In the middle of the nineteenth century, a persevering American, Frederic Tudor, who had experi-

mented for twenty-eight years with shipping ice from America to the West Indies, succeeded in transporting huge chunks of frozen water from Wenham Lake in Massachusetts to South America and beyond, . using as packing materials 'felt and sweet-smelling pine sawdust'.[240] On 6 September 1833 the ship *Tuscany* arrived in Calcutta from Boston with 180 tonnes of its ice-cargo (two-thirds of that loaded) still intact, and ice-houses for storage of the precious commodity were set up in Calcutta, Madras and Bombay.[234] Referring to this, Thoreau in his *Walden* poetically remarks that 'soon the waters of my beloved Walden will blend with the sacred waters of the Ganges'.[241] These massive imports led to the appointment of the first American Consul-General in Bombay in 1838.

In 1874, the International Ice Company started manufacturing ice in Madras by the 'steam process'[240] and in 1878 Calcutta followed suit.[239] Alongside, for domestic cooling and preservation, newspapers advertised cabinet refrigerators of polished oak, in which a block of ice was held in a galvanized iron tray at the top, and items of food placed in the lined, cooled cabinet below.[242] While travelling in trains, blocks of ice could be ordered from certain railway stations to be kept in the compartments to cool them

By Independence, block ice was being manufactured in 270 factories, chiefly situated in Calcutta, Bombay, Delhi, Madras and Kanpur.[84d] The commodity could be bought for domestic use, or to pack fish, milk and other produce for rail or road transport.

ice-cream Marco Polo is credited with having brought back to Italy, in the thirteenth century AD, not only noodles (which became vermicelli) but recipes for various water-ices that had long been consumed in China.[242] Cookery books of the eighteenth century in France and England had recipes for butter ices and cream ices, but the term ice-cream first appeared in America in May 1777 in the *New York Gazette*, the author being Philip Lenzi who described himself as a confectioner from London. In 1797 a public announcement for the sale and supply of ice-cream to the citizens of Baltimore was made in a newspaper,[243] and in 1809 Dolly Madison, wife of the President of the United States, served it to state guests, with considerable attendant publicity. The same Frederic Tudor (*see* ice) who brought ice from America to India, made ice-cream in the West Indies in 1810 using milk, cream and fruit juices, in an effort to establish a trade in ice that would help to render 'a beverage . . . or tepid water . . . palatable' in a hot climate.[240] He had enormous success in selling both ice and ice-cream in South America, Iran and India.[243] The first commercial production of ice-cream was in 1851 by one Fussel in Baltimore,[243] and soon after in Washington, DC, Boston and New York.[242] To make

the product in the home using a freezing mixture of ice and salt, churning pails cranked by hand became popular soon after the turn of the century in Europe, England and the colonial empires.

idi-āppam Fine noodles of a mash of boiled rice grits extruded in a press through brass dies constitute idi-āppam, which is mentioned in the *Perumpānūru* (fifth century AD) as a snack being sold by vendors on the seashore, along with the āppam, adai and moodagam.[3] A common breakfast item, it was accompanied, then as now, with sweetened coconut milk. The Syrians of Kerala and the Kodavas of Karnataka (where it is called nu-puttu) eat it with a meat stew or chicken curry. In Sri Lanka it is termed string hoppers, the latter word being an anglicization of the term āppam.

idli A common breakfast food of south India, the idli is a white, spongy, swollen circlet about 10 cm across. Rice grits and urad dhāl (in a 2:1 proportion) are ground together to a thick batter and left to ferment naturally overnight. Portions are placed on pieces of muslin held in depressions on a metal tray, and steamed in a closed vessel till cooked. Idlis are eaten with a coconut chutney (q.v.), or with sāmbhār (q.v.), or with a spiced pulse-based gritty powder called molagā-podi, doused with ghee or oil.

The first mention of the idli in literature seems to be as iddaligē in the *Vaddarādhanē* of Sivakotyacharya, a work in Kannada in the year AD 920, where it figures as one of eighteen items served to a brahmachāri who visits the home of a lady.[67b] Thereafter it is a frequent item in Kannada literature down the centuries. In AD 1025 Chavundaraya describes it in some detail as urad dhāl soaked in buttermilk, ground to a fine paste, mixed with the clear water of curd, spiced with cumin, coriander, pepper and asafoetida, and then shaped.[67b] The Sanskrit *Mānasollāsa* written in AD 1130 describes the iddarika as made of fine urad flour fashioned into small balls and then spiced with pepper powder, cumin powder and asafoetida.[137] In Karnataka, a century later, the idli is described as being 'light, like coins of high value'.[67b] In Tamil the itali makes only a late appearance, in the *Maccapurānam* of the seventeenth century AD.[244]

In all these references, up to *c.* AD 1250, three elements of modern idli-making are missing: the use of rice grits along with urad dhāl; the long fermentation of the mix; and the steaming of the batter to fluffiness.

In AD 1485 and AD 1600,[67b] the idli is compared to the moon, which might suggest that rice was in use; yet urad dhāl flour is itself off-white, and moreover there are references to other moon-like products made only from urad flour. The Andhra area still has cakes of steamed urad flour called vasina-pōlu. The Indonesians ferment a variety of products (soybeans, groundnuts, fish) and have a product very similar to the idli, called

kedli. It has been suggested that the cooks who accompanied the Hindu kings of Indonesia during their visits home (often enough to look for brides) between the eight and twelfth centuries AD, brought innovative fermentation techniques to south India. Perhaps the use of rice along with the dhāl was an essential part of the fermentation step which requires mixed microflora from both grains to be effective. Yeasts have enzymes which break down starch to simpler forms, and bacteria (which dominate the idli fermentation) carry enzymes for souring and leavening through the formation of carbon dioxide gas.

Xuan Zang was categorical in stating that in the seventh century AD India did not have a steaming vessel.[19a] But steaming can be achieved by such simple means as tying a thin cloth bearing the material to be cooked over the mouth of a vessel in which water is boiled, the antiquity of which would be impossible to establish.

Some idli variations have developed. The Kanchipuram idli served at the Devarajaswami temple is a huge (1.5 kg) preparation of ground rice spiced with pepper, cumin, ginger and asafoetida, and fermented using curds before it is steamed.[196] Idlis that use wheat ravā (grits) in place of rice are also often spiced and contain cashewnuts. The kadubu (q.v.) is related to the idli, but has a denser texture.

iguana A large lizard which was eaten both in the north and south of the country. The *Rāmāyana* lists it,[109] and the Tamil Sangam literature talks with obvious relish of a dish of 'iguana red meat big with ova resembling chank shell beads'.[101]

indrajau *See* Job's tears.

Indus Valley civilization As the earliest civilization of India, spanning the millennium 2500–1500 BC, life in the Indus Valley is naturally of enormous interest. Only a broad picture of overall features in relation to food is given here, and specific items (like agriculture, individual foodgrains, beverages [alcoholic], chicken, etc.) carry more details.

Settlements that culturally predate those of the Indus Valley occur to its north and northwest. Rawat is a settlement in the Pothohor plateau near Islamabad, and a dozen other sites, dating around 5000 BC and suggestive of great prosperity, have been identified in and around Makran in the valley of the River Kech in Baluchistan.[245] At Mehrgarh, along the Bolar river, a culture could be traced archaeologically as it developed through three millennia, with many features resembling those of the Indus Valley settlements.[245]

Over the next few hundred years, starting around 2500 BC, a thousand settlements arose in an enormous area along, and then spreading away from, the great rivers of Punjab, covering eventually Gujarat and parts of Rajasthan. The two major river-based metropolises were Mohenjodaro and Harappa, while other large settlements were those at Kalibangan,

Ropar, Chanhudaro, Lothal and Rangpur. All had close cultural affinities.

Nearly 3000 square seals of steatite have been found, with a clearly commercial connotation, that bear animal, tree and human figures, besides pictorial signs that number from 5 to 18 on each seal. These have been diversely interpreted: as a tantric language;[246] as a pre-Sanskrit, pre-Brahmi script;[247] as a Dravidian language;[248] and as a numerical system.[220] Well-made weights of remarkable accuracy were found in two series, one in fifths and tenths, the other in sevenths, perhaps for use respectively in internal and external trade.[247,249]

Agricultural operations included ploughing, furrowing, inundation, irrigation and raising water from below the surface with water-wheels.[5,10] It is likely that the area was then much more forested, though the rainfall patterns may not have altered significantly.

Among the foodgrains actually found in excavations, or as toy clay models, were, in different regions, barley, wheat, oats, rice, kāngni (*Setaria italica*), amaranths, jowār, sesame, linseed, mustard, coconut, peas, chickpeas, masoor, mung and horsegram;[77,85] besides these were dates, pomegranates and perhaps bananas. Bones of numerous animals attest to extensive meat eating, and fish hooks and bones of both river and sea fish have been found in abundance.[187,250]

Very large storage structures (*see* granary) were established, obviously as a state enterprise, in Mohenjodaro, Harappa and Lothal, of surprising degrees of sophistication in terms of aeration and rodent control.[164,167b,217,218]

Adjacent to the granaries were placed grain-pounding platforms. Domestic storage was in partly buried pottery jars. Grain-pounding cylinders and spice-grinding querns (*see* food, utensils) are of designs still in common use,[63b] as were hearths and baking ovens.[60c, 249, 251a, 252] Cooking and dining vessels (*see* utensils) were made of clay, shell, chert, bronze and copper.[253a] Alcohol was brewed, and apparently even distilled (*see* beverages, alcoholic).[108]

The Indus Valley civilization went into a decline as rivers changed their courses through tectonic shifts or became silted, or as the soil turned saline. Some settlements lingered on, while from others people moved outwards. Aryan incursions described in the *Rigveda* may have played a part in bringing the civilization to a close.

irrigation *See* agriculture.

Islam and food Dietary injunctions for Muslims derive both from the Quran and the Sunnah, which embody the recorded words of the prophet Muhammad.[254] Swine flesh is prohibited, but seafood allowed. Except for fish, it is mandatory to slaughter the animal ritually by halāl: the jugular vein is cut, or a hollow pierced in the throat, using a sharp knife, while uttering the name of

Allah. Alcohol is forbidden, along with games of chance, since according to the Quran 'in both there is great sin and harm'.[116a] Wine is referred to indirectly elsewhere as khamar (which means to cover up) since it clouds the brain.[116b]

Islam enjoins that no food be wasted, even leftovers being saved and eaten; it also stresses zakāt (q.v.), the obligation to share food with others, especially on Id-ul-fitr (fitr means charity). Fasting is enjoined on all the faithful during Ramzan, the ninth month of the Muslim lunar year, with a meal before sunrise (fatoor or sahri) and one after sunset (sahoor or suhoor), which should preferably commence by eating some dates. Indeed dates, honey, figs, olives, milk and buttermilk are items of food specially recommended in the Quran.[183] It has four Sanskrit-derived words for food items: ambar, resin; kāfur, camphor; mushk, musk or kastūri; and zenjabid, srngavera or ginger.[255]

In practice, regional, cultural and social practices influence the choice of food. Thus, while commensality is a cardinal concept of Islam, in many places, for example in Bihar, Rajasthan, the Laccadive Islands and rural West Bengal, while all Muslims may kneel together in prayer, constraints on dining together occur on grounds of social hygiene and personal cleanliness.[183] Three examples of regional social influences may be cited. Nearly a century ago, a British official noted that after a death, no meat or fish is consumed, and in the house of mourning, for forty days no food served.[256] In West Bengal, a black dot is applied to a child's forehead to ward off evil spirits, and the mother gives up 'hot' foods for the first five days.[257] For forty days both mother and child are considered polluted, and she can neither touch the Quran nor offer namāz. In exact parallel with the annaprasanna (q.v.), the child is given its first solid food at the Mammar bath ceremony in its seventh month.[257] In the far south, in Nellore, turmeric is applied to the face of a bride (an auspicious Hindu ritual), and astrology is extensively used to find a spouse or go on a journey.

However, the actual foods eaten in these households, while to some degree regional, have a distinct Islamic connotation. Some of these are maleeda (broken bread with sugar and ghee), palāo, biriyāni, shola (a rice-dhāl khichdi with meat) and haleem (q.v., a ground meat-wheat porridge), which is eaten with rōti. Two breads are fairly distinctive: sheermal, a sweet, baked, bun-like type, and khajūr, a sweetened crisp bread with poppy seeds and copra shavings. Kabābs of several kinds, called sheekh, shammi, husseni and tikka, are eaten, and the distinctive sweet concoctions include fruit juices and sherbets, phirni (a kheer made from rice grits, with added raisins, nuts and rose essence), and seviyan (fried sweetened vermicelli). Kheer, laddu, jilēbi, halwā, sohan-

halwā and burfi are sweets that cut across religion and are common to the entire community. So are many raithas, chutneys, morabbas and pickles eaten as food relishes in Nellore, and indeed all over the country.[258]

Italian millet *Setaria italica*, kāngni in Sanskrit and Hindi, and thennai in Tamil, is an exceedingly old grain. It has been excavated, on the one hand in prehistoric sites in Switzerland; and on the other, it was, even in 2700 BC, one of the five sacred grains of China, where indeed it may have been domesticated.[7g] In India it has been found in 2300 BC layers in Surkotada in Kutch (this may have been a wild variety),[32a] and in several early south Indian sites. In Tamil literature thennai is mentioned as a grain of the mountainous areas.[69a] In the *Perumpānūru* the cooked grain of the thennai is poetically likened to 'a swarm of the tiny young of crabs'.[83]

Italy, trade with *See* Rome, contacts with.

J

jackal A wild, gregarious scavenging animal related to the dog. Charaka lists it as an edible meat.[24] The *Mānasollāsa* of King Someshwara describes a composite spiced dish of pulses and vegetables to which could optionally be added brinjals, jackal meat or bone marrow.[49]

jackbean The badā-sēm of Hindi is botanically *Canavalia ensiformis*; it is a large bean with a pronounced white hilum along the edge that is native to the West Indies and Central America.[99i] It does look like a large sēm, but the latter belongs to a different family, and is moreover indigenous (*see* sēm).

jackfruit The genus *Artocarpus* has fifty species,[7d] and one each has found food favour in specific regions. In India and Indonesia it is the jackfruit, *A. heterophyllus*; in Malaysia and Oceania the bread-fruit, *A. communis*; and in southeast Asia the champedak, *A. integer*, a smaller version of the jackfruit. The jackfruit probably originated in India, and several other species grow here, like *A. lakucha* (whose edible fruit, lakoocha or lakhuda, is rated rather poorly by Charaka), *A. chaplasha* and *A. hirsutus*, all of which yield excellent timber.[99j] Resembling the jackfruit, but unrelated, is the malodorous durian of south-east Asia.

The word jack is a corruption of the Malayalam chakka; the Tamil word for the fruit, sakkei, which means abounding in refuse, is exceptionally appropriate.[1u] The Sanskrit term panasa for the jackfruit is thought to be of aboriginal Munda origin. The first foreigner to mention the fruit, Xuan Zang, in the seventh century AD, used this Sanskrit word in his Chinese writings.[100a] Ibn Battuta describes two types of fruit, barki which grows near the ground and shaki, less sweet and of poorer flavour, higher up the bark.[8Bb] Tamil literature mentions yet another, a fruit

of fine flavour that grows on the trunk below the ground.[259a] Rather curiously, when the pineapple first came to south India in the early sixteenth century, it was dubbed poruthu-chakka or the Portuguese jackfruit,[45c] from a resemblance in size and perhaps flavour.

Ludovico di Varthema (AD 1508)[21c] was tantalized by the taste of the jackfruit. He declared it to be 'sweet and delicious; when it is eaten it seems to be as though you are eating musk melons, and it appears to resemble a very ripe Persian quince. It appears also as though you were eating a preparation of honey, and it also has the taste of a sweet orange'.[21c] Ibn Battuta called it the best fruit in India,[8Bc] but Babar was less enchanted, saying it was 'like a sheep's stomach stuffed and made into a gipa (haggis) . . . sickeningly sweet'.[146] An English official, Robert Orme, noted in AD 1743 that the jackfruit was 'rich, glewy and nutritious' and like several other Indian fruits was 'at once a delicacy, and no contemptible nourishment'.[260] The abundance of the jackfruit all over India is repeatedly noticed by visitors, notably in Delhi by Amir Khusrau (*c.* AD 1300),[200] by Ma Huan (*c.* AD 1300) in Bengal,[8Bc] and by Fernao Nuniz in the markets of Vijayanagar in the sixteenth century.[8Bh]

In northern literature the panasa figures, rather late, in the Buddhist and Jain canon,[6c] but a couple of centuries earlier, it is even depicted in Buddhist sculpture in Bharhut.[8Ak] Varahamihira's *Brhat Samhitā* (*c.* AD 505) notes that the jack is amenable to grafting, and the operation is accurately described.[216] Early south Indian literature has many references to the familiar jackfruit, which grew in mountainous marudam terrain.[259a] A wandering minstrel, dining with farmers, was served the fruit,[72] and it was an item rended in hotels and restaurants.[72] A young man waiting to be married is told that his betrothed is like the 'tender stalk which holds the large jackfruit, though her love for you is immense'.[259b] An antidote for a drunkard, noted in Sangam literature, was made by blending the overripe seeds of the jackfruit, buttermilk, tamarind and the gruel derived from boiling aged rice.[69b] Ibn Battuta noted that these seeds could be stored in red mud for a year.[8Bc] Commonly jackfruit seeds are put aside, chopped up and curried, or roasted to bursting on an open fire and eaten.

Unripe jackfruit, kathal, when cooked with dry spicing, strongly resembles a chunk of fibrous meat. To cut open the huge ripe fruit a sharp, strong knife smeared with oil is needed to deal with the gummy latex. The bulb-like yellow fruits have a strong odour not agreeable to everyone, and are eaten as such or mashed to a drink (panaka). In Kerala a mash of the ripe fruit with roasted rice powder and jaggery is packed in a vāzhana leaf and steamed to give a product called unni-āppam, which constitutes a prasād in some Ganesha

temples in Kerala. In Kodagu, mashed jackfruit has been replaced in this concoction by mashed banana, but it is still called koovalē- or koalē-puttu, the koovalē being a soft and juicy kind of jackfruit. The flavour of jackfruit is one of many used in making sandesh in Bengal.

In medical parlance, the jackfruit and mango are textbook examples of 'hot' (ushna) foods, to be eaten along with a tempering 'cold' food like milk.

jaggery The gritty brown sugar of India is guda in Sanskrit, gur in Hindi, vellam in Tamil and jaggery in English. Though the sugarcane itself is mentioned even in the *Rigveda*,[6a] the viscous phānita and solid guda made by boiling down its juice first occur only a millennium later in *Sūtra* literature.[6b] A major sugarcane-growing area has always been Bengal or Gauda, from which according to Charaka the word guda derives.[6f] The English word jaggery is drawn from the Sanskrit sharkara for sugar, by way of the Malayalam chakkara and the Portuguese xagara (first used in AD 1516 by Duarte Barbosa), jagara and jagra.[lv] Indian medicine regards jaggery as a 'hot' food, growing increasingly 'colder' and less digestible as it is refined. Rice or barley water sweetened with jaggery is prescribed for debility as also in kidney disorders.[34]

All through history, jaggery has been the low-cost sweetener with a distinctive flavour. Laddus (q.v.) of sesame seed, wheat ravā, puffed rice, bēsan granules, coconut shreds, groundnuts and the like are fashioned using thickened jaggery syrup. These items are also made into chikki when the sweet matrix is further evaporated so that it sets hard. The pālala, now a sesame chikki called tilkut, goes back to Vedic times. Jaggery is used to stuff wheat parātas, as mentioned in the *Mānasollāsa* of the thirteenth century AD,[49] to yield pūrana and pōlika, the modern pūran-pōli and hōlige. Annaji in Karnataka (*c.* AD 1600) describes the obattu-garigē as being 'round as the earth, and made of wheat or rice flour with jaggery'.[67b] The rice-based sakkarai-pongal of the Tamil country is brown in colour through the presence of jaggery, as is the dark-brown fried athirasam or unni-āppam based on rice grits. In Goa, baked yams are coated with melted jaggery to yield an unusual dessert.

Jaggery is also made from various palms. In south India, this is from the sweet juice of the spathe of the palmyra palm, *Borassus flabellifer*. It is collected in pots smeared with slaked lime to arrest fermentation (an ancient practice),[83] then boiled down till the 'strike' occurs, and poured to set in moulds. Bengal uses the exudate from the trunk of the wild date palm, *Phoenix sylvestris*, and jaggery is poured to set in the halves of a coconut shell. The flavour of palm jaggery is relished in sandesh (q.v.) and mishti-doi (sweet curds, q.v.).

Fermented liquor and vinegar are

also made from jaggery. Called sharkara-asara in Sanskrit literature, liquor made from jaggery was permitted to kshatriyas and vaishyas, along with liquor from honey and mahua flowers. Most Indian liquors, whether distilled or otherwise, were frequently preferred spiced and sweetened, the latter often with jaggery. Vinegar (q.v.), shirka or shukto in Sanskrit, is first mentioned rather late by Dalhana (*c.* AD 1100) in his commentary on the *Sushrutha Samhitā*. It was made by placing jaggery solution in loosely covered jars, which were then buried underground to ferment for several months.[2h'] Vinegar is used by Muslims extensively in medicine and to some extent in cooking, and by Hindus infrequently, and only in cooking.[2h']

In about 1947, nearly two-thirds of all the sugarcane grown in the country was used for the production of some 35 lakh tonnes of jaggery. Another 19 per cent of the cane was used for making crystal sugar, and the rest went for chewing and planting.[119h]

Jain food ambience As far back as the eighth century BC there is evidence of shramanic or rebel cults among the Aryans that stood for equality of opportunity, as opposed to a Vedic brahminism based on birth, caste and occupation.[137] Both Buddhism and Jainism won adherents from shramanas who demanded merit from deeds and not from rituals and sacrifice.[137] Jainism counts 24 reformer-leaders or thīrthankāras, of whom the most forceful was the last, Mahavira, a contemporary of the Buddha.[68] Non-injury (ahimsā) was the cardinal tenet not only of the five drastic vows required of a Jain monk, but even of the thirty-five enjoined on a Jain householder.[137] A Jain monk was expected to sweep the ground on which he slept to remove any living thing, as well as the path ahead of him as he moved along. Even waste material had to be deposited in a place free of organic life so that the latter would not be destroyed.[138] Rigid food restrictions were based on avoiding injury to life, even when this was not apparent. No one could eat after dark (arātri-bhōjana),[138A] preferably all round the year, but at least during the four monsoon months when insects are abundant.[68]

The question of eating flesh simply did not arise, only 'absolutely innocent food' being permitted.[138] The prohibited foods included not only 22 'uneatables', but '32 things that have infinite life germs in them'. This was explained as food which had the potential for life to manifest itself, such as putrid or rancid food, vegetables like underground bulbs, roots and tubers that had germs in them, or pickles more than three days old.[138]

To illustrate these prohibitions, pulses that split into two parts (like the chickpea) were not allowed; nor were brinjals, any fruit (such as the five kinds of figs) with abundant small seeds (bahu-bīja), green tur-

meric and ginger, carrots, the tender green leaves of any vegetable, and tender tamarind fruit before the seeds had formed.[68] Honey was expressly banned on the ground that its removal from the comb implied the death of bees, and consumption of honey would destroy spontaneous creatures arising from it.[68] All water had to be boiled, and reboiled every six hours; all liquids had to be strained before drinking, whether water, milk or fruit juice. When drinking water from a tank or stream, and for a monk at all times, a Jain covers his mouth with a cloth, and drinks through it.[68]

Mahavira Jayanti is one of the four major Jain festivals, and there are some minor ones. There are twelve pratimas or fasts, of various durations, when the community abstains from even permitted foods, which may include milk, curd, ghee, oil, salt and sweetmeats.[138] Jain monks are not allowed to eat even permitted fruit if it has fallen from the tree, or fruit that is kept for sale in a shop or on the roadside. Everything eaten has to be thoroughly washed and wiped. Juices from quite a number of fruits are permitted, but soured rice gruel (kānjika) is not. As for liquor, a Jain monk is not permitted to even stay in a place in which liquor is stored.[6c] Thus Jain food prohibitions for both monks and laymen are considerably more severe than those for Buddhists or orthodox Hindus. Jains now number about 7 million in India.

The strong ahimsā teachings of Jainism and Buddhism forced brahmins to dispense with animal sacrifices and the use of sanctified meat, and eventually of all meat. States with a high proportion of Jains, like Gujarat and Rajasthan, and those with considerable Jain influence, like Karnataka, have a distinctly higher proportion of vegetarians than do other states (p. 262). Jain writers on food include, in Gujarat, Nemichandra (eleventh century AD) who wrote *Līlāvati*, Hemachandra who wrote *Abhidana-chintāmani* (twelfth century AD), and Asadhara (thirteenth century).[138A,186] In Karnataka, Chavundaraya wrote the *Lokōpakāra* (eleventh century AD),[261] and Gurulinga Desika the *Lingapurāna* (AD 1594).[67b]

Frequently it is early Jain canonical literature that carries the first reference in writing to certain food materials. Examples are the chickpea, alisandaga; the linseed, atashi; the sweet root kaseruka (*Scirpus grossus*); the bittergourd, karavella; the watercress mandakaparni; the spinach pālankya; and the brinjal vrntaka.

jāmbu The rose-apple, *Syzygium jambos*, that has a thin sweetish fleshy layer with a pronounced rose flavour covering a large round seed. In historical literature it is the source of a wine, jāmbu-āsava.

jāmoon The purple jāmoon or jāmūn or Java plum is *Syzygium cumini*, a fruit first mentioned in later Vedic literature.[6b] In fact there is a suggestion that the name may even be of Munda origin. In Tamil it is called

naval. The taste is sweet but decidedly astringent, and children enjoy it with salt. The juice stains the mouth a deep purple. A decoction of the bitter seeds is prescribed for diabetics.

Jāmoon juice is one of the acidic juices called rāga by Charaka.[6c] It was a beverage permitted to Buddhist monks.[6c]

The jāmoon was one source of fermented liquor, according to Charaka.[6f] It was also a raw material for making vinegar, called shirka in Sanskrit, and shukto or ambila in early Buddhist literature.[6c] The Bengali sweet delicacy, made from a deep-fried mix of chhāna and maida, and shaped like a large jāmoon fruit, is called gulāb-jāmūn (q.v.), almost purplish-brown in colour and served in sugar syrup.

jeera *See* cumin.

Jewish food By and large Jews in India follow the food laws set out in the Old Testament (especially in Leviticus and Deuteronomy), and in the rabbinical regulations known as the Kashruth.[262] Two strictures are the ban on the eating of pork, and the injunction that in killing an animal, the kosher system of cutting the jugular vein and allowing the blood (considered to be a part of life) to drain out thoroughly, must be followed. Orthodox Jews will not eat meat at the same meal in which dairy products are served, and even keep separate cooking, serving and eating dishes for each type of food. Also, fish without scales is not permitted, which includes shellfish and seafood.[262]

Jews came to make their home in India on four separate occasions. One of the lost ten tribes of Israel came to India, following persecution by the Greek overlord Antiochus Epiphanes, to form the Bene-Israel community. They arrived in Navgaon port in the Konkan, and now number distinguished professionals, mostly centred in Bombay, in their population of about 900.[263] The Cochin Jews originally arrived in the port of Cranganore in Kerala in the first century AD, after the Second Temple in Palestine was destroyed by the Romans. Persecution, first by the Muslims and then by Portuguese Catholics, caused them a millennium later to flee to Cochin where a synagogue was set up; today only a handful of these Jews remain, mostly as traders.[264] Much later came a group of Baghdad Jews who are now active in business in Bombay, Pune and Calcutta. The fourth group consists of European Jews who fled their homes following Nazi persecution.[265]

jilēbi Coiled strands which are crisp-fried, then immersed in thickened sugar syrup, and withdrawn for serving. The strands are formed by piping a batter into hot fat, using either a coconut shell with a hole at the base controlled with a finger, or a cone of some kind. The batter varies in different areas. It could be ground urad dhāl with a little rice flour as a binder, or bēsan (q.v.) and maida

(q.v.), both mixtures sometimes slightly fermented with curd. A crisp texture and golden colour are sought.[91]

Resembling the jilēbi is the jahāngiri or imrati, in which the batter of ground urad is coloured with saffron and piped into hot fat in symmetrical loops that give it the appearance of a rose. The product is soft and oozy and of a deep orange colour.

The word jilēbi is apparently a corruption of the Arabic zalābiya or Persian zalibīya. A Kannada work of Jinasura dated AD 1450 describes a feast at which the jilēbi was served.[67b] A well-known seventeenth-century work on dietetics, Raghunatha's *Bhōjana Kutūhala*, composed in the Maharashtra area, describes its method of preparation.[265A] The *Soundara Vilāsa* of Annaji (*c.* AD 1600) in Kannada accurately describes the jilabi (as he calls it) as 'looking like a creeper, tasty as nectar'.[67b] At a meal in south India it would be served as the penultimate sweet item, before the curd and rice.

Job's tears Botanically *Coix lacryma-jobi*, Job's tears are small, hard, shiny grains that occur in many shades of brown and black, and are indeed even strung as beads. The related species *C. aquatica* and *C. gigantea* are also used as food in parts of Southeast Asia. Called giral or kāsi in modern times, the Sanskrit term gavedhuka (modern Hindi garahedua) goes back to Vedic times, with ritual significance as an uncultivated grain.[6a] It grows abundantly on mountain slopes, and even a century ago was an important cereal on the north-eastern hills of Assam.[2i] The name kāsi and its variations, and the association of the grain with those of Mongolian affiliation, suggests an eastern origin.[2i]

jowār Commonly called sorghum in English, jowār in Hindi and chōlam in Tamil, *Sorghum vulgare* originated in or near Ethiopia, possibly from wild *S. propinquum*.[7g] Since sorghum cross-pollinates freely, it can diverge even by simple natural selection.[266a] Five basic races are recognized, of which Red Durra travelled, about 2000 BC or earlier, to the Near East and then to India, either by land along the Sabeaen Lane or by sea with the dhow traffic. Spikelets of jowār have been found in Ahar (Rajasthan) in strata dated 1725 BC and more profusely in 1550 BC and 1270 BC strata,[32a] and also in Daimabad (Maharashtra) in strata dated about 1700 BC.[85] A drawing that resembles the sorghum, noted on a potsherd from Mohenjodaro could even be slightly older.[85]

Yavanala and yavaprakāra (which mean resembling barley) are clearly terms for jowār derived from the Sanskrit yava for barley. Other names are akara, parichaya[407] and jūrna, from which the word juār or jowār derives.[6j] These Sanskrit names only appear extremely late, about the start of the Christian era, or perhaps a couple of centuries earlier, in the works of Charaka, Bhela and Kashyapa.[6j] The localization of jowār

essentially in western India, where rōtis made from it are the staple diet, may explain this late identity in Aryan consciousness. The name sorghum is derived from the Italian word sorgho, meaning to rise, and is descriptive of the conspicuous height of the plant in a field.[266a]

K

kabāb Roasting marinated meat on spits while basting with fat is described both in Sanskrit and Tamil literature. At a picnic meal described in the *Mahābhārata*, 'large pieces of meat were roasted on spits'.[53] The *Mānasollāsa* written in the twelfth century describes the bhaditraka as 'pieces of meat, bored, stuffed with spices and roasted on spits'.[49] Old Tamil literature has 'hot meats, roasted on the point of spits'[57] and again 'large pieces of fat meat roasted on spits'.[83]

Even so, the kabāb has a distinct identity as a dainty from the Middle East which is particularly favoured by the Muslims in India. Spiced mutton, chicken and beef are cooked, strung in small pieces with alternate bits of onion, garlic and ginger, on metal or bamboo skewers, and rotated over glowing charcoal embers. Sheekh kabāb, shammi kabāb, tikka and shāshlik are variations. Husseni kabāb is strung on skewers, but instead of being roasted it is deep-fried.[336] Ibn Battuta records chicken kabāb being served by royal houses during the Sultanate period.[53] Even common folk ate kabāb and parātas for breakfast, and in Mughal India a few centuries later it was still naan and kabāb.[53] In the *Ain-i-Akbari*, kabāb is listed as one of a class of foods in which meat is cooked with accompaniments.[28] Meat marinated in cream before roasting, called malāi-tikka, is a food popular with Bohri Muslims.

The British anglicized the spelling and pronunciation to cabōb, but preserved the essentials of its preparation, frequently employing the meat of wild game and animals of the chase.

kaccha food *See* cooking.

kadamba A moderately sized tree, *Anthocephalus cadamba*, bearing edible fruit and perfumed yellow globular flowers that look like the woollen balls used in playing ball badminton. A wine perfumed with the flowers was termed kadambari. Babar wrote that the kadam 'resembles a tumagha (a royal cap); the leaves are like those of the walnut, which the whole tree resembles'.[8Bj]

kadubu In AD 1485, Terekanambi Bommarasa describes the kadubu served at a royal feast in glowing terms: 'The kings are relishing the kadubu made of black gram; it looked like a full moon; like a mass of mist set together; as if heavenly nectar had solidified into circles; or as if a drop of moonlight had hardened. The kadubu was attractive to the eye and pleasing to the mind.'[67b] Thus it was then an item based on urad dhāl, but

is now a fermented and steamed mixture of rice with half its weight of urad dhāl. This is also true of the idli (*see* idli).

Later literature describes a number of variations. Tharagu-kadubu, which is kadubu steamed on leaves, is first mentioned in Kannada literature in AD 1430.[67b] Urad kadubu is noted in AD 1485, kadubu made from tiny sēvage (vermicelli) in AD 1506, and in AD 1594, kadubu made from ravā, chana (Bengal gram) or vermicelli, containing bamboo shoots. Thus the kadubu was apparently a generic term for a steamed product made of different pulses and cereals.

The kadubu is now a steamed slab of fermented rice-urad mix placed on a leaf, or more often a metal tray. Such steaming from only the top makes for a denser texture than in the porous, through-steamed idli based on the same ingredients. Stuffings, both sweet and savoury, can be placed between layers of kadubu, and the resulting sandwich cut up into smaller pieces for consumption. The denser kadubu is also amenable to further breaking up, followed by several possibilities recorded in Kannada literature, like frying; fashioning into a kheer in milk; reshaping into a ball or disc with jaggery; and roasting further to crispness to yield a product called uduru.[67b]

The Kodava thaliya-puttu, steamed on round metal plates, is mostly rice with just a little urad dhāl. It is usually eaten with a curry of meat or chicken.

kāhwāh An aromatic Kashmiri tea with cardamoms and almonds brewed in a special samovār. The term was originally employed in the Arab world in about the fourteenth century AD for a brew of coffee, which perhaps replaced an earlier sacerdotal wine of the same name used in Sufi circles.

kānji, kanji Current term for the resi-dual· starchy water, from the Sanskrit kānjika, in which rice has been boiled, or even for a weak suspension of boiled rice in its water, a food for invalids in south India. Frequently the product was left to sour overnight and drunk as a morning beverage, either hot or cold. It was a beverage not permitted to Jain monks. The acidic liquor was even used, like vinegar, to preserve fruits like the mango, āmla and cucumber. In Gujarat, a dish of fried pulse lumps in soured rice water is also termed kanji.

kapha One of the three bodily humours or dōshas (q.v.), kapha is composed of the elements earth and water, which give the body form and shape, stability and resilience.[34] The typical kapha prototype is strong, sleek and supple, with abundant virility. An unbalanced kapha is marked by pallor, coldness, dullness, itching and constipation. A marked psychological symptom is avarice.

In general, the site of kapha is the stomach, to which dietary therapy is applied. A disordered kapha is

countered by foods that are pungent, bitter and astringent, like pepper, garlic, ginger, mustard seeds and aromatic foods. Foods that increase pitta (q.v.) and vata (q.v.) also serve to reduce kapha.[34]

karēla *See* bittergourd.

Karnataka, food of Historically, writings in the Kannada language go back about fifteen hundred years. During this period, there is a whole book on food, the *Sūpa Shāstra* written by Mangarasa in AD 1516,[67a] and numerous chapters or references to food in no less twenty-three others.[67b] Thus the historicity of food is exceptionally well documented, though this is confined to the brahmin and Jain ambience, which is of course totally vegetarian. However this does represent the mainstream of food in Karnataka, which even at present is 36 per cent vegetarian.

To start with, we may consider the names of food items in the order in which they appear in the twenty-four works noted,[67a,67b] along with one other, the *Lokōpakāra* of Chavundaraya written in AD 1025,[261] which span a millennium, between AD 920 and the seventeenth century. These items are now listed: the date in AD of each book is set out first in italic type; this is followed by the name of the author, the title of his book, and the food items that occur in it: *920* (Shivakotyacharya, *Vaddarādanē*): iddaligē, purigē, sodhigē, lavangē, ghratapūran, mandigē; *1025* (Chavundaraya, *Lokōpakāra*): pālundē (synonym hālundē), melōgara, several leafy relishes, chana vadās, pālidhya, sandigē, shikarini; *1068* (Shantinatha, *Sukumāracharitē*): bamboo shoots in curd, undigē, pearl-like sweet pāladigē, 'frothy and milk-like madakangalu, very fragrant hayanga'; *1165* (Harihara, *Basavaragalē*): various boiled rices (ōgara), vegetable savouries, melōgara, bisumborigē; *1200* (Raghavanka, *Siddharāmacharitē*): happala, bālaka; *1222* (Parshava Panditha, *Parshavanātha Purāna*): hōligē, sarvalagiya (vermicelli)-pāyasa; *1235* (Kamalabhava, *Shānthīswara Purāna*): shāli-anna, a bead-like (sago?) pāyasam; *1430* (Chāmarasa, *Prabhulingaleelē*): nuchin undē (steamed thuvar dhāl patties) eaten with curd, kadubu; and *1485* (Terekanambi Bommarasa, *Sanatkumāracharitē*): kajāyya, brinjal bāji, rāitha, pacchadi, paramānna.

To continue similarly into the next two centuries: *1560* (Virakata Thonda Dalya, *Siddhēswara Purāna*): sevigē (vermicelli)-dōsai, chakkali; *1584* (Virupaksha Panditha, *Channabasava Purāna*): seekharanē; *1594* (Gurulinga Desika, *Lingapurāna, Khanda 1*): shrikhand (called by this name), various kinds of kadubu (*see* kadubu), rice or chana cooked with soma (wine?) and salt, various styles of cooking several vegetables (eight kinds of field bean are listed), thambittu (a wheat flour preparation); *1600* (Annaji, *Soundara Vilāsa*, second part of *Kavicharitē*): athirasa, obattu,

manōharada undē, sweet burudē, jilābi, wheat pāyasa; *1606* (Yelandaru Harishwara, *Prabhudēva Purāna*): various sandigēs, pacchadi, chakota (pomelo), rice-banana sukhin-vadē, mixed rice-wheat pāyasa; *1614* (Pancha Bana, *Bhujjabal-charitē*, second part of *Kavicharitē*): several vegetable dishes cooked using a complex fried masāla; *1648* (Govinda Vaidya, *Kanteerava Narsa Rajēndra Vijayē*): thuvar dhāl cooked with vegetables (huli), sanjeevani and kilasāgara (two sweet rōtis), thambālū (colostrum), precipitated milk solids, banana (nālikēra); *1700* (Lakshmeesha, *Jaimini Bharatā*): kacchadi; *1700* (Ayyappa, *Mauneshwara Bāla Leelē*): kosamri of chana, vadā of colocasia leaves, hōligē (so far called hūrigē). Five later extracts in the volume,[67] which date from AD 1750 to modern times, yield little further information.

The food preparations spanning a period of ten centuries noted in these works may now be further considered. Rice had pride of place in Karnataka after the tenth century AD. Four varieties of a cooked rice-ghee combination flavoured with garlic and salt, called kattogara, are illustrative. Crushed pāpad was mixed in to yield one variation, crisp-fried sandigēs made of the ash gourd another, and various cooked greens gave rise to yet other ōgaras. A mung dhāl khichdi is mentioned by this name. Further flavour changes were obtained by mixing in lime, huli (sāmbhār), turmeric, tamarind, or the powders of roasted rice and chana. Curd-rice that would keep for several days was made by cooking the rice in water in which, as a preliminary, the leaves of tulasi or madala (*Citrus medica*) were boiled. Rice-based preparations of Karnataka, like the idli and kadubu, are dealt with elsewhere as separate entries.

An exceptionally large number of wheat preparations are described. Despite being in the south, Karnataka, even today, consumes roughly equal amounts of rice, wheat and rāgi. The wheat items could be roasted, baked, steamed or fried. Roasting took several forms. Mucchala-rōti was baked between plates, with live coals above and below, and kividhu-rōti was made on a kavali (thavā) with a little ghee. Several thavā-roasted rōtis could be stacked one upon the other with a pierced stick, and flavoured with ghee, sugar, edible camphor and the thalē (palmyra) flower, to yield the chucchu-rōti. A stack of ghee-smeared circles, savudu-rōti, was baked on a griddle under cover of a cup. A cup cover above, live coals below, and a ball of dough within yielded uduru-rōti, from which the blackened crust was peeled off before consumption. Māndigē or māndagē was a delicate baked product; when baked on a heated tile (kenchu) it was called white-māndigē; and when overheated but still very soft it was ushnavarta-māndigē, which when exposed to air became vayuputa-māndigē. The stuffing could be

varied. Sugar and ghee yielded khanda-māndigē; multi-layered fillings of cooked chana, coconut shreds, dates and raisins yielded a māndigē variation called peranē-hūrigē. Today the māndigē or māndē of Belgaum is a very large and fine parāta made from a dough blended with finely ground sugar containing cardamom powder, baked on an upturned clay pot, and folded into a rectangle that sets moderately stiff on cooling.

True baking within a seal of wheat dough, called kanika in Kannada, is used to make the bhōjanadhika-rōti, in which māndigē broken up into small pieces is mixed with milk, cream, coconut milk, mango juice and sugar, and pressed into a ball. This is placed within a covering of wheat dough, and baked under a seal on a hot tile with the vessel being turned frequently. When done, the upper crust is sliced off, and ghee and sugar are poured in before it is eaten.

Steaming is the last step in a complex operation in which whole wheat flour is first cooked in milk; spices, fried coconut gratings and jaggery are added, and the mass is cooked again with water. Cooked banana flowers are put in, a seasoning of mustard seeds given, and the whole mass is steam-cooked to yield gōdhuma-ramba-kusuma, which literally means wheat-flowers mix.

Wheat dough made with sweetened milk or even cream, rolled out with coconut and bananas into circles and then deep-fried, yielded the yeriappa and the babara. Balls of dough made with wheat flour, curd and sweetened cream were deep-fried to produce pavuda. A less viscous batter of ravā prepared with sweetened milk was forced through a hole made at the base of a coconut shell cup (the usual extrusion device) directly into hot ghee to give the rope-like chilimuri.

As would be expected of vegetarian poets, descriptions of vegetable preparations are plentiful. Chavundaraya, even in the one chapter of his book devoted to food items, mentions thirty-one vegetables,[261] and Mangarasa has a long chapter on ways of cooking numerous vegetables.[67a] Chapter 8 in the *Lingapurāna*, written by Gurulinga Desika (AD 1594), is a long one, and the various ways of cooking nearly a dozen vegetables are outlined.[67b] Thus brinjals could be seasoned with ghee, salt, mēthi, urad and cream before being boiled. They could be roasted in ghee; spiced; placed on live coals and made into bāji (bhartha); or cut into small pieces and cooked with jaggery. There were so many kinds of brinjals besides to do all this with! The bittergourd had first to be debittered with salt water and washed. Thereafter many ways of cooking were open. It could be stuffed with a favourite masāla, tied with string and cooked; ghee-fried; cooked with jaggery syrup; cut into rounds and cooked with salt; cooked whole, stuffed or flavoured; and cooked with masāla in a spicy juice

in which the fruit would float. An unusual method that now seems to have been given up was to cook roots and greens in milk.[261] Some preparations are frequently mentioned down the centuries. Melōgara was a dish of pulses and greens in which tamarind was eschewed, and coconut gratings figured prominently. Eating pleasure, one poet says, comes from various kinds of melōgara.[67b] To make one kind, mung dhāl, avarai beans, urad dhāl, fresh chana or tuvar dhāl was first cooked with sesame seeds, then cooked again with greens, drumsticks, chakota (grapefruit), salt and coconut gratings, and finally mixed with ghee and tempered with asafoetida and thick milk. Even wheat dough pieces rolled into thin strands and fried could go into a melōgara. Several of the vegetables that went into a melōgara needed to be pre-treated, each one differently.[261] Thus certain leaves were first washed in lime water before they were cooked, other greens were washed in turmeric water, and yet others with common salt or alkaline ashes. The sūrana root was first boiled with betel leaves, or soaked in rice water and then cooked with tamarind leaves. A melōgara dish of dhāl and beans could be sweet, sour or spicy.[261]

Relishes were of many kinds. The bālaka (pronounced with a hard 'l') is now made by soaking large chillies in salt water, drying them, and frying them in oil when needed as a crisp and spicy accompaniment to food. Historically, some twenty kinds of bālaka were prepared in the *Linga-purāna* using various vegetables and their peels. The same work mentions five kinds of happala (pāpad) and fifty kinds of pickle (uppinkāyi). Deep-fried items eaten as crisp and crunchy accompaniments to a meal were the chakkali (called murukku in Tamil), a coil built up of continuous widening rings extruded from a thick rice-urad batter, and numerous sandigē (irregular lumps of spiced rice-urad batter, or sesame powder, or onion, or even vegetable skins like those of the ash gourd, all deep-fried to crispness in very hot fat). Curd-based relishes with greens and raw vegetables were known by various names, such as pacchadi, kacchadi, krasara-kacchadi (this had milk with the curd), palidya (one variety was called kajja), thambuli (with greens and coconut gratings) and rāyatha (a word in common use today). Kosamris were uncooked relishes made from chana or mung, which were soaked in salt water to soften and swell, and then garnished with salt, mustard seeds and fresh coriander.

There was a vast variety of sweet items and they alter little over a millennium. Sweet boiled rice, rice pāyasam in milk (of which paramānna was a prized kind that is repeatedly extolled), a rice-derived vermicelli pāyasam, mixed rice-wheat pāyasams, rice kadubu with a sweet filling, and deep-fried delicacies of rice flour and jaggery (now called kajāyya) were all based

on rice. Wheat was also used to make sweet dishes, especially in the form of ravā grits, from which came shāli-anna (now called kēsari-bāth, flavoured with the fragrant stamens of saffron), a fried ball (ghrtapūra), various pāyasams, and a laddugē. Wheat vermicelli from hard-wheat dough was extruded really fine as pheni, and usually eaten with sugared milk. Sweet wheat rōtis, stuffed with a mash of boiled chana, jaggery and coconut, constituted pūrigē, later termed hūrigē and thereafter hōligē; a thinner, drier form was the obattu, and there was a rolled-up, cylindrical form called surali-hōligē. Rolled-out pieces of dough were fried in various forms and dusted with castor sugar to give several phenis and chirottis; madhunala was a small tube of dough (of wheat, rice and chana, with added mashed banana) filled with sugar, sealed at both ends and deep-fried. Karaji-kāyi was a half-moon puff with a sweet stuffing; if only sugar constituted the stuffing, the result was sakkarē-burudē. Pulse flour of chana and black gram was also used to make sweetmeats. Boondi grains of this flour were shaped with sugar syrup into laddugē, pinda, mōtichūr and manōhara-undē. The jilabi, 'like a creeper, tasty as nectar' was made of chana flour; it was first mentioned by this name in AD 1600, and as jilēbi later (*see* jilēbi). Milk was the major ingredient for sweet pāyasa, as also for hāl-undē (balls of sweetened khoa) and hālaugu (the halubai of today). Shikarini consisted of curd solids lightly spiced and sweetened, the modern term shrikhand first being used for the dish in Kannada in AD 1700. Fruit juices, called rasayasa, appear through the centuries. Chavundaraya gives elaborate directions for extracting the juice from several fruits by exposure to the sun.[26] Another popular mix of ripe fruits or their mashes was seekaranē, of which there were numerous variations in choice and combination of fruits.

No non-vegetarian food finds mention in these texts.

One can easily trace in these preparations and their names many that are now current. The majjigē-huli is the historical palidya, the kootu is melōgara, and chitranna, puliyōdarē and bisi-bēlē-huli-anna are all forms of kattogara. Amvadē or ambodē, a vade of mixed dhāls, is less frequent, as is the steamed nuchin-undē of thuvar dhāl eaten with spiced curd, described in AD 1430 in the *Prabhulingaleelē*.[67b] Other vadās, and the new bōnda, are still here, as are all the forms of pāyasa, hōligē, obattu and chirotti. Old sweets like the madhunala and sukhin-undē (of rice, jaggery and banana, deep-fried) are disappearing, but Mysore pāk is still a favourite.

Slight sociological differences can sometimes be discerned in these accounts. In *Ūtadha Ragalē*, an anonymous work written in about the nineteenth century AD,[67b] devotees of Shiva are assigned different foods. Gnānalinga (novitiate) devotees are given sugared milk, creamy milk with

cardamom and ghee, and lots of pāyasa. The more staunch devotees get bajja (a kind of curd-based palidhya), kajāyya (called athirasam in the Tamil country and unni-āppam in Kerala), and five kinds of flavoured milk to help digestion. The advanced devotees, pushkara-keshava, get sannigē (perhaps this was a sago pāyasa, since it is described as being 'cool and white like the moon' and again like 'a sparkling necklace of stars'), sēmiya (vermicelli) pāyasa which is like 'the eye of the moon' and is flavoured with sandalwood, milk of rare quality, and butter. Yet everything offered is always white and pure, spiritual and sattvika (q.v.): even the ghee-fried vegetables have sugar added to them, and only white salt is employed. In *Ūtadha Ragalē*, the food eaten by the more wealthy people comprises sweet ghee-fried dishes (hōligē, māndigē, hūrigē, athirasa); pāyasas of wheat, vermicelli and chana; kadubu; and ghee, while the less wealthy people eat a spicy huli (sāmbhār) with banana pith in it, and hōligē cooked in oil.

Joy in good food and enjoyable eating repeatedly finds expression in these Kannada works. A work of AD 1485 reports: 'The kings are relishing the kadubu . . . the tamarind pickle and the side dish were consumed with great relish . . . the pacchadi eaten with delight . . . The kings of the earth ate slowly until their appetites were satiated.' In AD 1680, Mangarasa writes: 'The brahmins . . . threw their sacred threads over their shoulders, loosened their garments, completed their rituals and dined heartily (while exclaiming) are they not tasty?' The poet in AD 1584 asks: 'How can I describe the beauty, generosity and nobility of the food served so lavishly?' The charms of the ladies who serve the food are extolled by Govinda Vaidya (AD 1648) and Mallarasa (AD 1680): they had faces like the full moon, collyrium in their eyes, turmeric on their faces; ladies of all the four classical types, with bells on their waists, bangles on their hands, anklets which made music on their feet, wide of hip and slender of waist. And in *Ūtadha Ragalē*, the diners are described as 'eating to excess, bursting their waist-strings, getting up with difficulty, but exclaiming with satisfaction'.

Kashmir, food of The beauty and abundance of Kashmir has gladdened every eye. The French traveller, Tavernier, who visited India for twelve years during the reign of Jahangir, wrote: 'Meadows and vineyards, fields of rice, wheat, hemp, saffron and many sorts of vegetables, among which are intermingled trenches filled with water rivulets, canals and several small lakes, vary the enchanting scene.'[8Bd] Much earlier Xuan Zang had noted that the pear, wild plum, peach, apricot, grape, etc. have all been brought to India from the land of Kashmir,[100a] and this continued for centuries thereafter till the Mughals took steps

to grow them in their own territories, while also establishing their rule in Kashmir.

Apart from temperate fruits, certain food ingredients are distinctive to Kashmir. Its wild grapes have repeatedly been commented upon (*see* grapes). The famous red chillies of Kashmir are intensely coloured, but with little pungency (*see* chilli). Saffron, mentioned by Tavernier, grows only in Kashmir (*see* kēsar). According to Manucci,[55] a white wine perfumed with flowers was imported from Kashmir for Jahanara Begum, Aurangzeb's sister.

Historical works from Kashmir carry certain references to food. The *Nilamata Purāna* of AD 550–650 mentions shāli rice as the staple of Kashmir; the milk of both cow and buffalo was used, apūpa and pishthaka sweet confections were made, meat and fish were important foods, and the first snowfall was celebrated with drinking.[114] The *Rājatarangini* of Kalhana (*c.* AD 1200) notes the consumption of rice and barley by the poor.[267] Mung (mudga) was eaten, but considered an inferior food, perhaps in comparison with meat, fish and pork, which were all relished. With regard to alcohol, the nobility drank a light wine flavoured with flowers. Honey and fruits were widely consumed, and the spices used were asafoetida, onions and ginger. Both salt and pepper are rarely mentioned. Products from both cow and buffalo milk are described.

Today even Kashmiri brahmins eat flesh, but the food of the Hindus and Muslims are differently spiced.[181] Hindus use asafoetida, mēthi, ginger and saunf; Muslims use onions (a variety called praan) and garlic, and both use Kashmiri chillies, intense in colour, but mild. Appropriate mixed spices are ground and shaped into discs with a hole in the middle, called alasadas or wadis, from which pieces are broken off for use either in cooking, or as a table spice. A festive feast is wazwan, cooked by specialists called wazas. Lamb dishes abound: yakhni (in curd); aab-gosht (cooked in thickened milk); rōghan-jōsh (literally red meat, with 'Hindu' spicing, browned in ghee, then boiled in curd and coloured red with dried cockscomb); marzwangan korma, a mince; several meat balls, like gōli and rishta; and goshtāba, a meat loaf of very fresh mutton pounded in its own fat, large and silky in texture. There is even a special mishāni dinner, served, say, for a wedding, in which exactly seven dishes, all made from lamb, are served.[268] Rib chops, boiled and then fried, are tabakmaaz; there are fish (much) kabābs, while fish with radish is gardmuf. Chicken is cooked with brinjals, and shikār is duck cooked with vinegar, garlic and chillies. Before the advent of Islam, pork-eating was popular in Kashmir.

Rice is the staple food and is of course cooked in many ways, like the tursh, shulla and zarda (sweet) palāos. Wheat breads include the kulcha, the sheermal (*see* rōtis), the chewy girda,

the sesame-encrusted tschvaru and the soft bakirkhani, all eaten for breakfast with tea.[269] Tea is made in metal samovārs, and is brewed either green, or with cardamom and almond to yield the richer kāhwāh, both of which are sipped all day long. Vegetables are grown in summer and dried in large quantities for use in winter. The unique floating gardens of Kashmir are water weeds bonded with lake mud on which are grown cucumbers, melons, tomatoes, radishes and mint. In the lakes themselves are to be found lotus roots (rhizomes) called nedr which are cooked with meat, fish, and greens, or fried to crispness, or deep fried in a rice batter coating.[181] Chutneys are made from fresh walnuts, sour cherries, yellow pumpkins and white radishes, and for dessert there is fruit like cherries, apples (āmri and maharaji, *see* apples), peaches, pears and plums.

The Dogras are Rajputs from Kashmir who eat wheat, bājra and maize as staple foods. Sri-palāo and mutton-palāo, made from rice, are popular with them.[270] The other popular dishes are curried rājmah, a curd preparation called auria, and the relish ambal. Expert cooks are called sīyan, and community meals called dhaam are served on large lotus leaves or stitched leaves (pattal) and in cups (doona). A Dogra verse has it that a man can never fail in his missions if he eats radish on Tuesdays, sweets on Wednesdays, curd on Thursdays, rāi on Fridays, uses oil on Saturdays, chews betel on Sundays, and looks into a mirror on Mondays![270]

kattha Water extract of the heartwood of *Acacia catechu*, boiled down to a dark brown paste rich in astringent tannins. It is smeared on betel leaves before folding into a quid for chewing.

kedgeree An anglicization of the Hindi word khichadi which is a dish of rice cooked with dhāl (usually mung) and ghee. The British kedgeree was the same dish, but often included fish, and was eaten for breakfast.[1w]

Kerala, food of Kerala was long known as Chera, historically part of the Tamil cultural ambience. Tamil literature notes that 'the sweetest toddy' came from Kuttanad (now in Kerala),[46] and according to Ibn Battuta, the sugarcanes of Barkur were 'unexcelled in the country'.[8Bc] Bananas of immense variety grow in profusion. It was near Kozhikode that Vasco da Gama landed in 1498, to die in Cochin twenty-six years later. Frequently, words for food items adopted into English from Malayalam were mediated by the Portuguese, like jaggery, betel leaf, areca nut and the like. The *Hortis Malabaricus* was compiled between 1680 and 1700 by the Dutch governor, Heinrich van Rheede, in 12 volumes with 794 plates, with the help of a Carmelite missionary, Father Matheo, and a traditional Kerala physician, Itty Achyuthan.[8Cb,273] Many plants which entered India from the New World first found a

home in Kerala, like the cashewnut, pineapple, tapioca and cocoa.

Above all Kerala was the land of spices, the focus of European eyes. For centuries, long pepper, round pepper, cardamom, cloves, ginger, turmeric and other spices had been shipped out from Kerala ports such as Quilandy (Tondi, Tyndis), Nileshwar (Nelkyanda), Cranganore (Muziris) and Kollum (Quilon), at first by the rulers there and later by the Arabs, Portuguese, Dutch and British. Factories, ports and naval fleets were set up to facilitate this trade, supported by armed might.

Kerala has been the hospitable home to many exotic religions. St. Thomas the Apostle, who arrived in about AD 50, made the first conversions to Christianity on Indian soil in Kerala. Since the scriptures were written in Syriac, a dialect of Aramaic, Kerala converts came to be known as Syrian Christians. Jews also came into Cranganore during the first century AD, after the Second Temple in Jerusalem had been destroyed by the Romans. Persecution, first by the Muslims and later by Portuguese Catholics, drove the Jews a millennium later to Cochin, where a synagogue was set up in AD 1567.[264] Arab traders had been active in Kerala even before the birth of Mohammad; after the coming of Islam, they formed the Kerala community of Moplahs, which grew by conversion.

Five large groups live in the state of Kerala, and each has a distinctive food list. The ancient community of Syrian Christians will be considered first.

The rice āppam, a pancake also called vella-āppam, is common to all Keralites; it is eaten with a meat stew by Syrians, and with an aviyal of vegetables by Nampoothiris and Nairs. Syrians favour the kal-āppam, baked on a stone griddle rather than a clay one. The kuzhal-āppam, as its name implies, is a fried crisp curled up like a tube, and is typical of Syrian food. There are two other Syrian āppams, very different in character, and both sweet. The acch-āppam is a deep-fried rose-cookie made of rice, the name derived from the metal frame (accha) needed to make it; this is dipped in batter, drained, and then immersed in hot oil. The nai-āppam, called athirasam in Tamil Nadu, is a deep-fried, chewy, dark doughnut, fashioned from toddy-fermented rice and jaggery. There are two other breakfast items common to all Keralites. The idi-āppam is a dish of cooked rice noodles, eaten with sweetened coconut milk or with a liquid meat or chicken curry. The puttu consists of rice grits and coconut shreds, which are alternately layered in a bamboo tube. The latter is then affixed to the spout of a vessel in which water is boiled. The mass is pushed through after it has been steamed. Being rather dry, puttu is commonly eaten with bananas, or with a spicy dry chana. Another rice-coconut combination uses fried rice and is called avalose, a Syrian

speciality. It can be moulded into an unda (ball) with sugar syrup. The churutta (literally cigar) is rice-based again; it has a crisp, translucent outer case, which is filled with rice grits and sweet, thickened palmyra juice (called pāni). The unni-āppam, eaten by all Keralites, consists of a mash of ripe jackfruit, roasted rice flour and jaggery, folded in an aromatic vāzhana leaf (of the cinnamon family) in the shape of a triangle, and steamed. Jackfruit cooked with jaggery and some cardamom constitutes chakka-varathiyathu.

The Syrians eat beef, and eracchi-olathiyathu (fried meat) is a wedding speciality, a dry dish of beef chunks and coconut pieces fried in its own fat. To make eracchi-thōran, cubed beef is first boiled with vinegar and salt, then shredded on a grinding stone, lightly fried with spices, a coconut-masāla mixture added, and the whole briefly steamed. Kappakari has pieces of tapioca (kappa) in the beef, and is finished by frying in oil. Most curries, including meat, always have a lot of coconut milk. Meen-vevichadu (cooked fish) is cooked differently in different areas even by Syrians. Both in Kottayam and Thrissur, river fish is used; this is cooked in Kottayam with the sour kokum fruit rind, called kodampuli, and is very red in colour with added chillies and even colouring matter; in Thrissur, tender mango as the souring agent and coconut milk are used. Meen-pattichadu uses very small fish like oil sardines, or even prawns, with coconut gratings. For Christmas there may be a wild duck, cooked as a mappas, or roasted with stuffing. Wild boar cooked with a strong masāla, or pickled in oil, are also Syrian specialities.

For pouring on dry dishes, buttermilk mixed with turmeric and spices is used; this is called kacchia-moru. Some sweet items have been mentioned earlier. A wedding speciality is thayirum-pazhampāni, in which sweet palmyra juice is thickened by boiling down and poured on ripe bananas, mashed together, and eaten with curd. As a deep-fried savoury snack there is pakkuvadā, a version of pakoda.

The Muslims of Kerala are called Moplahs; they are descendants of Arab traders who married local Kerala women and later increased their numbers by conversion. The word itself is either a corruption of magal-pillai, meaning son-in-law, or a generic term for a pillai convert, a marga-pillai being a Buddhist, a nazrani-pillai a Christian and a jonaka-pillai a Muslim.[270A] Though the usage of rice, coconut and jaggery is common, there is evidence of Arab influence in the biriyānis and the ground wheat-and-meat porridge aleesa, elsewhere called harīsa.

The rōti is the distinctive podi-patthiri, a flat, thin, rice chapāti made from a boiled mash of rice baked on a thavā and dipped in coconut milk.[271] The aripatthiri is a thicker version made from parboiled rice; the dough is flattened out with the fingers on a

cloth or banana leaf to prevent it from sticking. Nai-patthiri is a deep-fried pūri of raw rice powder with some coconut, fried to a golden brown. All these patthiris are eaten at breakfast with a mutton curry. Steamed puttus, eaten with small bananas, would figure also at the morning repast. A wedding-eve feast could include the nai-chōru, rice fried lightly in ghee with onions, cloves, cinnamon and cardamom to taste, and finally boiled to a finish. A wedding dinner would necessarily mean a biriyāni of mutton, chicken, fish or prawn, which is finally finished by arranging the separately cooked flesh and the cooked rice in layers, and baking these with live coals above and below. Soups of various flavours are made from both rice and wheat, with added coconut or coconut milk, and spices. A whole wheat porridge with minced mutton cooked in coconut milk is called kiskiya. A distinctive and unusual sweet is mutta-māla (egg garlands), chain-like strings of egg yolk cooked in sugar syrup and later removed from it; frequently this is served with a snow-like pudding called pinnanthāppam made from the separated egg whites, which are whisked up with the remaining sugar syrup, steamed, and cut into diamond shapes.[271]

The Thiyas are a community that formerly tapped toddy but have now entered many other professions.[181] Āppam and stew are the breakfast fare, the stew being varied: fish in coconut sauce with tiny pieces of mango, mutton in coconut milk, or simply a sugared thick coconut milk. A bread speciality is nai-patthal, in the shape of a starfish. The curd pacchadi may be of pumpkin, and the sweet dessert may be one of several prathamāns (q.v.), for example, mung dhāl boiled in coconut milk and flavoured with palm jaggery, cardamom and ginger powder, and laced with fried cashewnuts, raisins and coconut chips.

The Nairs are the Nakar, the original warrior class of Kerala,[272] whose cooking skills have been employed by non-vegetarian families all over the south. Breakfast again is either the vella-āppam or the bamboo-steamed puttu, eaten with sweetened milk and tiny bananas. Certain vegetable specialities, though eaten by all Keralites, have special Nair associations. The sāmbhār of tuvar dhāl with vegetables like green bananas, drumsticks, various beans and green cashewnuts (this is distinctive to the Nairs) is cooked in coconut milk and tossed with some coconut oil in spiced sour curd. Kālan is the same dish that uses green bananas alone, and ōlan is a dish of white pumpkin and dried beans cooked in coconut milk and coconut oil. A wedding feast of the Nairs will include several types of pacchadis, pickles, chips and pāyasams based on milk, coconut milk, rice, dhāl and bananas. No meat is served at a wedding, though normally meat is eaten. Such domestic meat and chicken cooking, though spiced, uses

a great deal of fresh coconut and coconut milk which tempers the dish to mildness. Small pieces of ash gourd or raw mango cooked with coconut, curds and chilli paste constitutes pulisseri, and puli-inji is fried sliced ginger.

The Nampoothiris are the brahmins of Kerala who may have first arrived there around the third century BC.[272] They are strict vegetarians who favour for breakfast the idli, dōsai and puttu with a coconut or curd accompaniment, and eat their rice with kootu, kālan and ōlan. Use of garlic in cooking is avoided. The thōran is usually made from the pods of green payaru (lōbia) cut into small bits, stir-fried in oil and finally cooked in a little water. Green bananas, spinach, cabbage and peas can all be made into thōran, and eaten with rice. Aviyal and erisseri, a pumpkin curry, are common. Chattha-pulisseri is a shrāddha speciality, a sour buttermilk preparation of pepper, salt and coconut paste, thickened by boiling down. All Kerala groups eat yellow banana chips fried in coconut oil and lightly salted. The best ones are reputed to be made in Kozhikode, which also boasts of a special sweet halwā made of bananas. The pāyasam of Kerala uses rice and milk, but the prathamān (q.v.) has milk or coconut milk along with fruit or dhāl, or with paper-thin shreds of a rice roll, cooked separately and added to the sweetened milk to give pāladha-prathamān.

kēsar Kēsar is the gently dried stigma of the nargis (narcissus) flower, *Crocus sativus*. It is the kesara and kumkuma of Sanskrit, the zaffran of Persian and Arabic, and the saffron of English. It is first recorded in the fourth century BC, and is probably native to Greece. Its first mention in Sanskrit is in a medical dictionary, the *Bhava Prakāsha*.[2j'] Cultivation in Kashmir seems to have commenced in the sixth century AD. Bernier notes that saffron grows in Kashmir,[8Bd] and Jahangir records the production of '500 maunds by Hindusthan weight'.[274] Thereafter cultivation was neglected till revived a century ago by Maharaja Ranbir Singh.[269] The very dry alluvial plain of Rampur, and to some extent that of Paraspur, provides excellent conditions for the growth of the crocus. The purple blooms sit close to the ground, and are harvested for three to four weeks in October–November, very early in the morning before the sun comes up.[269]

The powerful fragrance and orange colour of kēsar are prized in Indian cuisine among the wealthy. Even a couple of stamens are sufficient to colour and flavour items like the kēsari-bāth (q.v.), palāo and the frozen kulfi (q.v.).

kēsari-bāth A confection of wheat ravā (q.v.) lightly fried in ghee, with sugar added, and flavoured with kēsar, sometimes called sūji-halwā. In old Karnataka it was called shāli-anna. It is an easily prepared dessert, popular all over India, and called by this name even when coloured and flavoured with other ingredients.

kēsari dhāl Even in AD 1590, Abul Fazl[28] had noted the distressing effect of crippling (now called lathyrism) caused by consuming kēsari dhāl, *Lathyrus sativus*, either singly or in large quantities. Of the two types — a small-seeded dhāl called lākhori and a larger one termed lākh — the latter is believed to be the cause of lathyrism. It is a very old grain, and has been found in 6000 BC layers in Jarmo in Turkey, and in various Indian sites between 2000 and 1500 BC, such as Chirand (Bihar), Atranjikhera and Nevasa (Maharashtra).[32a]

khadi A dish of spiced and diluted curd beaten up with bēsan (q.v.) powder, sometimes with balls of fried pulse immersed in the liquid. Frequently turmeric is used to heighten the yellow colour.

The *Bimalprabhanda* written by Lawanyasamay (*c.* AD 1200) in Gujarat (quoted in Ref.53) mentions themanam, which resembles a khadi, and the *Varanaka Samuchaya* (AD 1520)[136] mentions a pulse-based khadi flavoured with asafoetida, both suggesting a Gujarathi provenance for the dish. Much earlier Charaka mentions a dish of curds called khada acidified with the pulp of the woodapple or with changeri leaves (Indian sorrel).[6f]

khaman *See* dhōkla.

khand Sugar in the form of large crystals, which Alexander's party in 326 BC described as 'stones the colour of frankincense, sweeter than figs or honey'.[32a] Along with other forms of sugar, khand has been known in India since at least 800 BC.[6b] Kautilya in the *Arthashāstra* (*c.* 300 BC) describes the whole range of sugarcane products (q.v.).[16] The smaller, faceted crystals are sometimes mixed with snacks that are chewed, like grits of areca nut (supāri), crisp fried snacks of flattened rice (chidva), etc.

Khand was traditionally obtained by boiling down sugarcane juice to incipient crystallization; the mass was then placed in a basket lined with fine cloth.[119h] Water in a finely divided form, derived from moist aquatic weeds placed on top of the basket, served to wash away the molasses. The layer of sugar crystals that formed immediately below the weeds was repeatedly removed and this constituted khand. When redissolved and crystallized, this yielded an almost white crystaline sugar, called misri or chīnī, or if in the form of large crystals, khand, that varied in size from a couple of millimetres to solid blocks.

khandsāri Later Hindi term for rock sugar (*see* khand), which could vary in colour from white to dark brown. Before crystal pan sugar was manufactured in India, large quantities of khandsāri (15,000–20,000 tonnes in AD 1830) were exported annually to England and Europe for being further refined to crystal sugar. At Independence, about a lakh tonnes of khandsāri was produced annually in India.[119h]

khaskhas The tiny seeds from poppy capsules, also called posto, a com-

mon spice in Indian kitchens, and also converted with jaggery syrup into laddus (q.v.). Poppyseeds are also crushed to give an oil of fine flavour (*see also* poppy).

kheel The puffed product obtained by stirring whole paddy grains with very hot sand; the product made in a similar way from rice is called murmura. Kheel is ground to yield a flour called sattu, a pottage of which is a popular breakfast item all over north India.

kheema A dry curry of minced lamb or beef. It is especially popular among Muslims as a breakfast item eaten with parāta (q.v.) or naan. A more liquid form could accompany a rice meal.

kheer A sweet confection based on rice. When prepared as a ritual 'pucca' food, the rice is first lightly fried in ghee before boiling with sugared milk till the milk thickens (*see* cooking). A kheer of jowār is mentioned in the fourteenth-century *Padmāvat* of Gujarat,[275] and other cereals and cereal poducts (vermicelli, sēv, pheni) may be used as well. A thinner product is pāyasam, and both are popular desserts, routinely as well as on festive occasions.

The Hindi word kheer derives from the Sanskrit ksheer for milk and kshīrika for any dish prepared with milk.

khichdi, khichiri A composite dish of rice and mung dhāl (occasionally other dhāls may be used) cooked with ghee and some spices. The recipe for khichdi made in Akbar's kitchen[28] specifies equal proportions of rice, mung dhāl and ghee, along with certain spices. Jahangir's favoured food on his days of abstinence from meat was a very rich Gujarathi khichdi called lazizan, with both spices and nuts.[80A]

Much less ghee would be used in common versions of khichdi, repeatedly mentioned by visitors as the common evening (and occasionally morning) meal of Indian agricultural labourers. These include Ibn Battuta,[8Bb] Abdur Razzak[8Bf] and Francisco Pelsaert,[8Be] among others. Khichdi was even fed to horses, according to an early Russian visitor, Akanasy Nikhitin (*c.* AD 1470).[276] The British adopted the item as a breakfast dish called kedgeree (q.v.)

khoa The solids of milk, obtained by boiling it down in a large metal pan called a kadhāi, stirring the liquid at first, and constantly scraping it later with a flat ladle called a khunti to prevent caramelization. The light brown mass is finally shaped into a large ball or small pats. Khoa itself is a sweet concoction, sometimes further sweetened with a quarter its weight of sugar to yield burfis, and flavoured with cardamom to yield pedas. Khoa is the base of the frozen dessert kulfi (q.v.). The early Sanskrit term for khoa was shakarpāka, which is used in the *Shivatattvaratnākara* of King Basavaraja of Keladi.[52] Khoa has a high content of all the three major nutrients, protein, fat and sugar (lactose).

kidney bean *See* rājmah.

kitchens *See* cooking.

kneading pan *See* utensils.

knives *See* utensils.

Kodagu, food of Perched on the lush hilly highlands in the Kodagu district of Karnataka are a martial people, the Kodavas, with a distinctive cuisine. Rice is eaten boiled, or as a distinctive ghee-coated product (naikūlu), or as a palão with the meat chunks firm and every grain coated evenly with masāla. Rice is transformed in numerous ways, and each has a distinct non-vegetarian accompaniment. The akki-otti (rice rōti) is based on a thick dough of ground rice rolled out on a wet cloth, roasted on a thavā, and eaten with a spicy sesame seed chutney, or a dry and salty dish of bamboo shoot chiplets called baimblay (these shoots are also pickled). With the palão goes a pasty relish of ripe wild mangoes in a curd base called mangay-pajji. A paper-thin, soft handkerchief of rice (neer-dōsai) is accompanied by a chicken curry into which is poured a lot of coconut milk. The nu-puttu of Kodagu is the strand-like idi-āppam of south India, once eaten with jaggery water but now with any liquid (meat, chicken) curry. Steamed balls of mashed and cooked rice constitute kadambuttu, which is paired with a pork dish that has a very thick dark masāla, in which an essential component is the black, sun-drawn extract of the kokum fruit (*Garcinia indica*). The acidity of this kāchampuli serves to keep the fat on the pork firm and chewy. A breakfast dish consists of a steamed thick batter of broken rice (thāri), liberally sprinkled with fresh coconut shreds, called pā-puttu, which is often eaten with ghee and the excellent honey so plentifully available in Kodagu. Another is thaliya-puttu, fine rice batter with a little urad dhāl, steamed on metal trays, and eaten with meat balls (kyma-undē) in gravy.

Two fish are in use. One is the sardine, matthi-meen, and the other the tiny whitebait (koylē-meen), cooked dry and eaten bones and all. Two popular desserts are both based on the banana. Well-ripened fruit is mashed with the powder of roasted rice, to which a little mēthi is added, to give the uncooked thambuttu, eaten with ghee, fresh coconut scrapings and roasted sesame seeds. To make koalē-puttu, a banana mash with small wedges of matured coconut is steamed in a banana leaf packet; when the packet is opened, a brown slab is obtained, eaten either hot or cold with fresh butter. The name is a corruption of koovalē-puttu, which is the same dish that was earlier made not with banana, but with the ripe pulp of the soft, weepy variety of jackfruit called koovalē.

kodhra The kodo millet, kodhrava or kodhra in Sanskrit, is *Paspalum scorbiculatum*. It was a sacred grain for the Aryans, and in *c.* 300 BC Kautilya mentions a cultivated form, kodhrava, and a wild form, dāraka,[16] which a century later Charaka refers to as uddalaka.[6j] Ibn Battuta in the

thirteenth century records that among the grains stored in the stout walls that surrounded Delhi were 'kudhrū grains' that had been placed there by Sultan Balban ninety years earlier.[8Bb]

Excavations at many sites in the Dekhan plateau have revealed that the grain was in use even in 1800 BC.[8Al; 277] Varagu is frequently mentioned in early Tamil literature. It was a product of the forest areas termed mullai;[69] the cereal varagu was sown along with the horsegram kollu, and its straw was used to thatch houses.[83] Kodhra grain is widely employed as cattle fodder.

Horsegram suppresses vata and kapha, and is constipative.[325]

kosher meat *See* Jews, food of.

kulfi A popular frozen dessert, probbably brought by the Mughals from Kabul and Samarkand, or else developed by them in Delhi. It derives its name from kulfi, the conical metal vessel in which it is made. Its preparation is described in the *Ain-i-Akbari* (AD 1590)[28] as freezing (probably in an ice-salt mixture) a mass of khoa (q.v.) containing chopped pistachio nuts and the essence of kēsar (q.v.), in a metal cone, sealed with a plaster of wheat dough, a method followed to this day.

L

laddu A sweet confection popular all over India which takes the form of a ball of various materials held together with thick jaggery or sugar syrup. The base materials could consist of roasted sesame seeds, ravā (wheat semolina) or fried globules (boondi) of the batter of various pulses, especially bēsan (q.v.). In early Sanskrit writings, the term modaka seems to signify the later ladduka, though at present the modaka (q.v.), modak or moodagam signifies a sweet-stuffed envelope of dough.[6k] The term ladduka first finds mention in the *Mahābhārata* and the *Sushrutha Samhitā*.[6k]

ladles and spoons The Vedic sacrificial ceremonies entailed numerous libations of ghee, butter, water and milk. For each of these, ladles of specific material, size and design were prescribed.[65,66] Large wooden ladles, with a yoni (oval)-shaped bowl ending in a lip, were collectively termed sruk, with individual items known as jūhu, dhruvā, upabhrt and pracharani, Small metal ladles with a long, slim handle and lipless bowls, used for sprinkling ghee and water, were termed darvi, sruvi, sruva, tragbila and vitasi. Other ladles were the pariplupatra and antardhana. Spoons included the pariplava, a spoon without a handle for drawing out the soma juice; havani, a spoon used by the angihotr priest; and grahani, one used to hold prasadya (a mixture of butter in its own buttermilk after churning). A large, cup-like bowl with a handle, used as a decanting vessel, was termed prasaka.[63,64] From being used for specific religious functions, some of these utensils passed into domestic service.

Early south Indian literature

mentions three types of agappai spoons : thattai-, sanda- and shirra-, besides numerous ladles with such names as karandi (a scraper-spoon), sattuvam, muttai, thaduppu, maravai, thotti, kinnam, marakkal and abanam, all doubtless of specific functional design.[86,102] The vattal was a flat ladle made of either wood, stone or metal. Some of these devices continue to be used in the kitchen to this day.

lady's finger The Sanskrit, bhinā-daka,[407] with a hard n, has been identified as the present Hindi bhendi, and Charaka mentions a plant bhandi.[6f] It was poetically called the lady's finger in colonial times in India, and okra in America. *Abelmoschus esculentus* is of African origin, and though perhaps a late entrant into India, is a popular mucilaginous vegetable, cooked in wet or dry form. It is a polyploid with 65 chromosomes, 29 from one genome and 36 from another, but even the basic chromosome number is uncertain.[7r]

leaf plates and cups Many early societies must have used leaf plates and cups, but their use persisted in India because of the strong concept of cross-pollination that marked the Vedic food ethos (*see* etiquette); this made disposable materials attractive even after those of clay, stone, wood and metal became available. The Vedic sacrifices[63,64] mention patravali (Hindi patrōli), a plate made of leaves stapled together with slivers of cane or bamboo, while the pūrnaputra was a funnel made from a leaf of plaksha (palash, *Butea monosperma*) in which boiled ceremonial rice was hung on a tree. Apart from the palash and the large leaves of the lotus, leaves of the banyan and the teak, stapled together, are mentioned. In south India the choice was leaves of the lotus and the banana, both large in size, soft, and water-and heat-resistant. Moreover banana trees were easily grown using waste kitchen water in every home. Kashmir has a community meal called dhaan, prepared by special cooks called sīyan; this is traditionally served on huge round ambal (lotus) leaves, with the liquid items proffered in leaf cups called doona.

leather vessels Called kutuh or kutup in the *Amarakōsha*,[17] bags of leather are mentioned even in the *Rigveda* and *Manu Shāstra* for storing liquids like water and oil. The skin of a whole goat is extensively used in India for transporting water, slung across his shoulders by a bihisti or bheesti. The latter word is of uncertain origin, but could be from the Sanskrit vish, meaning to sprinkle.[1x]

lehya(m) Category of foods that are meant to be licked, one of several food classifications (*see* etiquette). In medical parlance it came to have the connotation of a medicated paste or viscous liquid, like the well-known restorative, chyāvanaprās.

lemon *Citrus limon*, oval in shape and yellow-green in colour, is an ancient Indian fruit. Excavations at Harappa (*c.* 2000 BC) revealed 'a pendant in the form of a lemon leaf in burnt steatite',[164] and it is repeatedly

referred to by Indian writers and foreign visitors as an acidulant in cooking both meat and vegetables, as the source of a refreshing beverage, and as an ingredient of tarts and puddings in British India.

lemon grass *See* ginger grass.

lentils *See* masoor.

lima beans A native of South America, the long, thin pods of *Phaseolus lunatus* are used as a vegetable in India.

lime The round, yellow, thin-skinned acidic Indian lime, kāghazi-nimbu, is *Citrus aurantifolia*. Though the Sanskrit term nimbuka is of Munda derivation (numbaka), the species is thought to be of Malaysian origin, though obviously known from very ancient times in India.[158a,158b] A rāga or juice from the lime is mentioned by Charaka.[6f] Babar listed the lime among the eight citrus fruits he encountered in India,[146] and European visitors to Vijayanagar in the sixteenth century AD commented on the abundance of both lime trees and lime fruit.[8Bd,21] Francois Bernier carried with him on his travels a stock of lime for refreshment.[8Bd] Lime juice was one of the five components of the arrack-based drink, punch (q.v.), popular in colonial times; nimbu-pāni, and later fresh lime with soda, was the supreme quencher of colonial thirst.

lime paste *See* chunām.

linseed The annual *Linum usitassimum* originated in Europe from a wild perennial ancestor, and was developed there to take the form of tall, unbranched plants that were utilized for the production of flax fibre and linen cloth. Sanskrit writings refer to kshuma and uma, which have been interpreted to mean linen, and which Manu considers appropriate wear for a student. Yet flax and linen have all but vanished in India, perhaps because the emphasis here is on the plant as the source of an oilseed.[2k'] In north India, the plant was crossed with the annual herb *L. strictum* to give an ecotype with yellow flowers and small, oil-rich seeds. In the south, it was crossed with *L. perenne* (which is favoured over *L. mysorensis*) to yield another ecotype with blue, lilac and white flowers, and larger seeds of low oil content.[169d] The names for linseed oil in south India, such as alshi, agashi and aishi, resemble the Sanskrit athasi.[278]

Linseed was identified in excavations in western Iran dated 7500 BC.[279a] In India, two riverside sites in Maharashtra, Navdatoli and Daimabad, yielded carbonized linseed in sites dated between 1660 and 1000 BC, and a string of beads on spun flax fibres was found with a burial in nearby Chandoli.[32a,280] The name athasi occurs in Jain and Buddhist canonical literature (*c.* 400 BC)[6c] and in the *Arthashāstra* of *c.* 300 BC,[16] while the fibre is noted under such names as haimāvata and marsina.[2k']

Linseed oil has a strong odour, and finds very limited edible use. It is used to flavour, for example, a

type of chutney in areas around Nagpur. A century ago, a dish called tisjauri, described as rice cooked with linseed oil, was recorded in Bihar.[281] It is mentioned in ancient agricultural writings as a dressing used to nurse sick trees back to health.[277] Unāni medicine (q.v.) makes considerable use of linseed oil. In the colonial period, its value as a 'drying' component in paints and varnishes resulted in a sharp spurt in production, largely for export.

liquor *See* beverages, alcoholic.

litchi *Nephelium litchi* (long classified as *Litchi chinensis*) is a native of southern China which the Portuguese residents of Bengal introduced into the area at the end of the eighteenth century AD.[282] The spiny red fruit has a sweet pulpy aril that surrounds a shiny oval seed. It has rather exacting climatic requirements, and does well almost only in Ramnagar in north Bihar and Dehra Dun in Uttar Pradesh.

lobia *See* cowpea.

loquat An edible yellow-orange fruit not unlike a small apple, popular in China and Japan, which Xuan Zang in the seventh century AD did not find in India.[100a] *Eriobotrya japonica*, also called the Japanese medlar, was noted in AD 1821 as 'growing extensively' in Bangalore,[1a] but it is now rare and confined to the hilly areas of Uttar Pradesh and Bengal.[99k]

lotus The roots, seeds, stalks and tender leaves of *Nelumbo nucifera*, kamal in Sanskrit and Hindi, have been consumed in India since the dawn of history. Excavations at Harappa yielded a 'representation of a lotus root in faience',[164] and the *Yajurveda* (*c.* 800 BC) mentions the edible lotus root as shāluka.[6a] Today they are widely used as nedr in Kashmir cuisine, either fried to crispness, or coated with rice batter and deep-fried, or cooked along with meat, fish or greens. In the *Mānasollāsa* is described a dish of pulses with pieces of lotus stalk.[49] The soft seeds are considered a delicacy, as are the tender leaves. Full-grown lotus leaves are very large in size, and their use as serving plates at a kingly repast has been described by Nemichandra in his *Lilāvati* (*c.* AD 1170).[67b] In Kashmir, a special feast called dhaan is laid out on a lotus leaf (*see* leaf plates and cups). The Buddha remarked that water meant for drinking should be 'clear, cool, shining like silver and with the fragrance of the lotus'.[25A] Indeed it was common practice to grow the lotus plant in tanks to purify water meant for drinking.[11] The lovely flower of the lotus, raising itself clear above the water surface, is regarded as a symbol of purity. It has been celebrated in textile design, jewellery and sculpture right through Indian history.

M

mace The fruit of *Myristica fragrans*, a tree originating in the Moluccas, yields a nut which is the nutmeg (Hindi jaiphal); this is surrounded by a scarlet aril, mace (Hindi jatri), which becomes visible when the fruit ripens and bursts open. The nutmeg is shredded for use, while mace is pressed flat, dried to a translucent red-brown and cut into strips for sale. If used in excess, both products give rise to nausea and even hallucinations. Linschoten (AD 1580) notes the consumption of both materials along with bhang, a narcotic, by poor people.[130b] Rather curiously, Xuan Zang was provided with twenty nutmegs daily during his stay at the Nalanda monastery in the seventh century.[103d]

madhu Sanskrit word for honey, which was later used for many items with a sweet taste, such as madhuka (mahua) (q.v.), or *Madhuca indica*, with sweet flowers, and historical sweet confections such as madhu-mestaka, -parka, -shīrshaka, -kroda, -golaka, -nala, -sarika and -mada (*see also* honey).

madhuparka An auspicious ambrosial beverage made up of five ingredients, ghee, curd, milk, honey and sugar. It was offered on solemn occasions:[13b] to a guest on arrival, to a woman after seven months of pregnancy, to a student when he left home for apprenticeship with a guru, to a suitor on arrival at the girl's house, and to a bridegroom arriving for the wedding ceremony. A dab of madhuparka was placed on the lips of a newborn male child. The madhuparka rite is set out in the *Ashvalāyana Grhya-Sūtra*.[282A]

madhya In ayurveda, madhya itself connotes any strong liquor, while madhya-varga signifies alcoholic beverages as a class.

mahārāja A term frequently employed in north India to signify a cook, perhaps from the mythological story of Nala, a māhāraja of Nishada, who, in reduced circumstances, entered the service of the king of Ayodhya and was renowned as an accomplished cook.[270A] Nala-pāka signifies food of outstanding quality.

mahāshāli Shāli itself connoted a fine transplanted winter rice, and mahāshāli was a plump variety of exceptional quality. Shaman Hwui Lui, a disciple of Xuan Zang, recorded this rice in the list of food items that his master was served when resident for some years in the seventh century at the great Buddhist monastery in Nalanda in Bihar. He writes: 'This (mahāshāli) rice is as large as the black bean, and when cooked is aromatic and shining, like no other rice at all. It grows only in Magadha, and nowhere else. It is offered only to the king, or to religious persons of great distinction, and hence its name mahāshāli, or in Chinese kung-ja-tinmai (rice offered to the great householder).'[103d] Even eight centuries later, the Gujarathi work, *Varanaka Samuchaya* (AD

1520), lists mahāshāli rice among numerous rice items,[136] an astonishing persistence of the name, and perhaps of the variety itself.

mahua An ancient tree of India, *Madhuca indica* has diverse uses. A colonial administrator, Capt. J. Forsyth, wrote in AD 1871:

> The flower . . . possesses considerable substance, and a sweet but sickly taste and smell. It is a favourite article of food with all the wild tribes, and the lower classes of Hindus: but its main use is in the distillation of ardent spirits, most of what is consumed being mhowa. The spirit when well-made, and mellowed by age, is by no means of despicable quality, resembling in some degree Irish whisky. The luscious flowers are no less a food of the brute creation than of man.[1b]

Much earlier Ibn Battuta had noted that 'the fruit resembles a small pear and is very sweet . . . The mahua bears fruit twice a year, and from its kernels they make oil, which they use in lamps'.[8Bc]

The tree, botanically *Madhuca indica*, is mentioned in the later *Vedas*.[6a] The sweet flowers are noted as a source of sugar by Sushrutha,[33] but were preferably either eaten as such, or converted into alcohol. Thus Grierson[281] noted about a century ago in Bihar that a dish called mahuar contained mahua flowers, bēsan flour and linseed, while another dish called latta was made of mahua flowers and parched grain. The flowers, when fermented, yielded a product that was distilled to make mahua spirit, described as having a 'mousey, foetid' odour.

Such distilled spirits were frequently sweetened and spiced, and mahua flowers themselves could be used for such saccharification. Colonial administrators stated that in about AD 1800 practically every village in Gujarat and Rajputana (Rajasthan) had its spirit shop, the number of these being 'absolutely incalculable.'[21] In the middle of the nineteenth century, the production of distilled mahua spirit was licensed to a score of Parsi entrepreneurs on the island of Uran, near Bombay; in AD 1850, even the duty on produce amounted to £ 80,000 (Rs12 lakh).[119a]

In the seventh century AD, Xuan Zang noted the mahua as one of the fruits of India,[8Aj] and Ibn Battuta remarked on its sweetness centuries later.[8Bc]

The crushing of mahua seeds for fat is noted as early as in 300 BC in the *Arthashāstra*.[16c] The seeds were cracked with stones, and the inner kernels crushed for fat in traditional ghanis and later in modern screw-presses. Tribals, especially those in central India, have always been associated with mahua products, and obtained the fat by crushing the boiled kernels between two wooden planks, or using the trunks of two trees as the lever and fulcrum respectively.[169e] The fat was used for cooking purposes.

maida This is the fine, white, inner flour of wheat obtained either by selective grinding in a chakki, or by segregation using specific gravity

principles during the milling of whole wheat. It was traditionally favoured for making light-coloured fried products like the pūri, bhathūra and lucchi, and in recent times for preparing bread, biscuits, cakes and certain sweetmeats.

maireya *See* beverages, alcoholic.

maize Called in America Indian corn, and later simply corn, *Zea mays* was throughout history the staple food of both North and South America, with beans (rājmah) as the pulse complement. The Tehuacan valley caves of Mexico have furnished evidence for the continuous evolution of maize from 6000 to 4000 BC, from a prehistoric grass (as were many modern cereals) to a stage where the pods had become two centimetres long, thereafter to increase further in both pod size and productivity.[279b] The ancestor is now believed to have been a perennial wild grain, teosinte (*Zea mexicana*), which hybridized with *Z. diploperennis*, another perennial teosinte, to spark off, 4000 years ago, an explosive evolution that led to modern *Zea mays* as a cultivated plant.[283,284] Today seven types of corn are distinguished, and each is believed to have been developed by a specific ancient American culture, like the Mayan, Aztec, Inca and Chibehan.[7t]

There is thus little doubt that maize evolved in Mexico and South America. Yet there is some evidence that maize was grown in India before the inflow of New World plants in the sixteenth century AD. There is a Sanskrit name for the plant, mahākāya, which is of uncertain age.[407] One authority, Merrill, states in the most emphatic terms that 'not a single basic food-plant is common to both hemispheres before 1492'.[285] Speaking of maize, Mangelsdorf, another authority, states: 'Perhaps there has indeed been a pre-Columban trans-Pacific migration culture and maize has been involved in it',[286] but then stoutly maintains that there is no tangible evidence of it whatsoever.

What are the facts on the Indian side? Very primitive forms of maize have been found in hilly Sikkim.[287] Careful studies by many experts show that these fall into fifteen races, and the question that arises is how so many forms, with innumerable local names, could have arisen in just 400 years from a single genetic source introduced from the New World?[288] A second finding is that of a potsherd dated AD 1435 from Kaundinyapur in Madhya Pradesh, which bears an impression on the clay that is strikingly like that of a corn cob with its orderly array of large grains. Again, pollen grains from sites in the Kashmir valley of a very early date have been identified with those of maize. Finally, the temple at Somnathpur, just outside Mysore city, built in the twelfth century AD, shows as many as 92 figures holding in their right hands what looks remarkably like a corn cob. A Swedish scientist has recently stated that he is quite positive that these

represent heads of maize, some even being depicted with a characteristic silky tassel at the top.[289] It has been argued that the same object is found in a Rajasthan idol of about AD 800, and that it represents a Jain religious icon of which we have lost track.[290] Further, statistical analyses of various ratios of these objects do not match those of actual maize cobs, either modern or ancient.

Maize has found a place in Indian cuisine. Bhutta flour, makki, is converted in Punjab into rōtis that are eaten with butter and a spicy relish of sarson (q.v.) leaves. In Gujarat, traditional rōtlas of bājra are now sometimes made with maize flour. In Indian medical terms however maize is perceived as a 'cold' food in contrast to 'hot' bājra. Popped corn was noted even a century ago in Bihar as a snack food called parmal,[281] which later became a common urban snack all over the country.

makki The rather coarsely ground flour of maize (q.v.). Very fine cornflour for baking has limited traditional uses.

malabathrum An item that regularly featured in the trade between south India and Rome, which was at its height in the first two centuries of the Christian era (*see* Italy, trade with). In AD 1560 Garcia da Orta identified it as tejpat (q.v.), the aromatic leaves of *Cinnamomum tamala*.[7s]

mandarin orange *See* citrus fruits.

mango Inevitably, myth and legend have accrued around the ancient mango tree. It is thought by some Hindus to be a transformation of Prajapathi himself, the progenitor and creator of all creatures.[57d] Buddhists consider it sacred because the Buddha was accustomed to rest in a mango grove gifted to him by an admirer.[160] On another occasion, the Buddha ate a mango fruit, planted the stone and washed his hands over it: a beautiful white mango tree sprang forth bearing flowers and fruit;[160] it was looked after carefully, as shown in a tender medallion sculpted in Bharhut. In one legend, from a mango fruit appeared a daughter of Surya, the sun god, who was recognized by a king as his wife from a previous birth.[160] The long racemes bearing mango flowers symbolize the darts of Kamadeva, the god of love, as depicted, for example, in the play *Shākuntala*, by Kalidasa (fifth century AD).[57d]

The literary record is ancient. The *Rigveda* itself mentions saha, but whether this is the term sahakāra used for the mango in later literature is uncertain. From its very first mention as āmra in the *Brhadāranyaka Upanishad* (*c.* 1000 BC)[6j] and in the slightly later *Shatapatha Brāhmanā*, the virtues of the mango fruit have been extolled for three thousand years. In later literature it also figures as chūtha, rasāla and sahakāra.

The hills of north-eastern India adjoining Myanmar are the likely centre of origin of the mango.[31j] Wild varieties still exist there, besides several other related species. In fact the āmrataka, even now called the

wild mango but belonging to a closely related species, *Spondias pinnata*, is also mentioned in the *Brhadāranyaka Samhitā*.[6j]

In Tamil, the fruit is called manga, or man-kāi, which is perhaps a euphonic transposition of ām-kāi (mango fruit) from the Sanskrit āmra.[270A] The Tamil word manga was first used in a European tongue in AD 1510 by Varthema,[1c'] and repeatedly thereafter. Using the current term mango for the first time in AD 1673, Fryer goes into superlatives over its taste: 'When ripe, the (legendary) Apples of the Hesperides are but fables to them; for Taste, the Nectarine, Peach and Apricot fall short'.[1c'] Practically every foreigner in India echoed these sentiments.

The mango is a highly heterozygous plant. Every tree raised from a seedling is potentially a new type, since seed is formed from the cross-pollination of a female cell of the flowers with the male pollen from other trees, with either one dominant or recessive.[291] Vegetative propagation and grafting in the past helped to preserve superior types. Grafting was first used on the mango by the Portuguese, and yielded varieties like the Fernandin, and others which were recorded in about AD 1700 by Niccolao Manucci thus: 'mangoes of Niculao Affonso, Malaises Carreira branca, Carreira Vermelha, of Conde, of Joani Parreira, Babia (large and round), of Araup, of Porta, of Secreta, of Mainato, of our Lady, of Agua de Lupe.'[55] In AD 1695 Giovanni Careri wrote: 'Some are called Mangas Carrieras and Mallais, others Nicholas Alfonso, others Satias, and others by other names.'[26Aa] Some current Goan varieties like the alphonso, pairi and mulgoa can be discerned in these Portuguese names.

Mughal patronage also played a notable part in encouraging mango grafting. Noblemen could have all their revenues remitted by raising orchards.[27] Mangoes of high quality were collected from all over India and grown by Muqqarab Khan in his garden in Kirana. He was also able to extend their bearing life for two months, serving fruit to Jahangir on one occasion on September 3 and on another as late as on October 17.[41] At first grafting was permitted only in the royal gardens, but Shahjahan lifted this limitation, and the technique was extended to a variety of fruit besides mangoes (*see* grafting). Down the centuries, the selection of a superior variety that arose spontaneously, and its later perpetuation by grafting, led to nearly a thousand varieties of mango.[8Db] Two types are distinguished, one with firm flesh for table use, and the other for sucking, with ample thin juice. Among those of north India are the dussehri (originating from a village of the same name near Lucknow), langra (which a lame fakīr of Varanasi noticed growing in his backyard), chowsa and ratnal (both names of villages near Lucknow) and safēda. South India has the neelam

of Tamil Nadu, the banganapalli, benishan and suvarnarekha of Andhra Pradesh, the mulgoa of several southern states, notably Karnataka, and the pairi and incomparable alphonso of Maharashtra. Recent hybrids of high quality are the amrapali, a dwarf but profuse variety that is a dussehri-neelam cross, and another that is a banganapalli-alphonso cross. Sucking varieties include a group from the village of Gangian in Punjab, and the rasālus of Andhra Pradesh.[8Db]

Mango trees even a hundred and fifty years old have been known to yield fruit in profusion. A gigantic tree near Chandigarh, killed by lightning in AD 1955, yielded an enormous average of nearly 16,800 kg of fruit annually.[8Db]

The mango fruit has been utilized in different ways. The ripe fruit is of course eaten, and is reported in ancient Tamil literature as being served in restaurants,[72] and in Kannada literature as a component of ripe fruit mixtures called seekharanē.[67b] Wild ripe mangoes are cooked in curd in Kodagu to give a sweet-sour relish called māngē-pajji, and are also cooked whole, including the seeds, to a sweetish curry. The sucking varieties can be 'drunk' by making a hole at the top and squeezing out the juice, and are particularly favoured for juice extraction in factories. Charaka terms sweet fruit juices panaka,[6f] and mango juice was a permitted food for Buddhist monks.[25A] When the juice is dried in thin layers on bamboo mats the delicious chewy ām-pāpad or āmbsath is obtained, and a mango 'cheese' called mangada has been developed in Goa. Mangoes when green are tart, and have their appropriate outlets. Meat cooked with mango pieces is described in the *Mahābhārata*,[58] and Kerala has a fish curry cooked in coconut milk along with tiny pieces of green mango. Lord Shiva, of choleric disposition, is appropriately depicted in the sixteenth-century Bengali work *Chandīmangala* as being served sour mangoes for dessert.[89] Semi-ripe mangoes, boiled, pulped, strained and sugared, yield the delicious beverage now called mango-fool. Green mango is frequently ground into raw chutney used as an accompaniment to a meal. Pickles of unripe but tender mangoes abound, some using even the whole fruit with the seed. A wandering minstrel is served with 'tender mango pickle' in ancient Tamil,[72] and it figures again in a feast in old Karnataka.[83] Around 400 BC, Sanskrit literature records preserves of green mango in vinegar and soured rice gruel.[6c] Morabbas (q.v.) of ripe, sliced mangoes in spiced sugar syrup, and sweet versions of mango chutney (q.v.) in spiced sugar-vinegar bases, became popular with the colonial in India; sizeable quantities were commercially bottled for use in the country and for export.[119e]

Wine made from ripe mango juice was termed sahakarāsura by

Charaka.[6f] In medical terms, the mango had the very strong connotation of a 'hot' food, which had necessarily to be imbibed along with 'cold' milk to avoid boils.

Mango kernels are essentially starchy, and have been pressed into service as a famine food.[2m] Grierson described a bread made from mango kernel flour called anthi-ki-rōti a century ago in Bihar.[281]

A string of mango leaves is hung as an auspicious symbol across a household door. The characteristic mango fruit motif is widely used in sculpture, in fashioning utensils like plates and paan-holders, and in textile design, for example, sari borders. The shape of the mango was incorporated as the paisley motif in shawls and printed fabrics exported to Europe. The mango pervades the Indian literary corpus. Thus in an early Tamil work, the eye of a woman is compared to a very tender mango cut horizontally with a rusty knife, the stone resembling the pupil surrounded by the white of the eye.[259b]

māsha *See* urad.

masoor *Lens culinaris* is masūra in Sanskrit and lentil in English. The pink gram is one of the three Ms of Aryan literature (along with mudga or mung, the green gram, and māsha or urad, the black gram). Masoor has been found even in the seventh and sixth millennia BC at many sites from Turkey to Iran, the earliest of these grains being much smaller than the present varieties.[7u] India has both an average and a small variety, called masoor and masari respectively.[292] Masoor has been found in excavations at Navdatoli, Ter and Chirand in periods dated between 1800 and 1000 BC.[85] The literary record shows that masūra, mangalaya and khalva find mention in the *Brahadāranyaka Samhitā*, the *Vājanaseyi Samhitā* and the *Taittirīya Brāhmanā*, all around 800 BC.[293] Though there are several wild species, *Lens orientalis*, which has the same chromosome number (2n=24) and shows a series of intermediate types with *L. culinaris*, is believed to be its progenitor.[294]

The name masūra is believed to have an aboriginal connotation to it, suggesting an early presence in India. Tamil has no separate name for the pulse, only the derived maisūr-paruppu, a product of the mountainous mullai areas of the Tamil country.[69b] Everywhere masoor was a winter crop, grown in the north along with wheat and barley, and in the south with varagu, kollu or horsegram and Bengal gram.

Being a plough-raised crop, masoor was classed as anna or kristapachya. Charaka includes it among the twelve pulses that comprised shāmidhānya; its parched product constituted one of the bhrstadhānyas.[24] However it is a food forbidden in a fast, or as a divine offering.[293] In Bengal it is not eaten by staunch Vaishnavites. However the Buddha permitted it to his monks along with mudga and māsha, all being considered 'full of soul qualities, but devoid of faults'.[25A]

mat, moth bean *Vigna aconitifolia* is in Sanskrit mat, matki, mankastha and vanamudga,[6j] and in English the moth bean. A host of Indian names testify to its antiquity in India,[2n] though perhaps it was only domesticated after urad and mung.[294b] For long it was taken for granted that the moth bean originated from the wild species *V. trilobata*, but recent studies have shown that the two species are distinct from each other, and possess some isolating mechanisms.[295] Wild forms are known in Mexico and Guatemala,[294b] which leaves wide open both the origin of the moth bean, and its very early presence in India. Two other members of the *Vigna* species, sutari (*V. umbellata*) and lōbia (*V. unguiculata*), are both indigenous.

mattar *See* peas.

meal, order of Indian medicine is in great measure based on appropriate diet (*see* ayurveda), and in turn health perceptions have set the pattern of Indian meals. Great stress is placed on taste or rasa (q.v.), and each taste is believed to be a combination of any two of the five fundamental elements of all matter, which are earth, water, fire, air and ether. There are six 'pure' tastes, which are madhura (sweet), āmla (sour), lavana (salty), katu (pungent), tikta (bitter) and kasāya (astringent). Every meal was expected to include all the six tastes, and in the order just listed, according to Sushrutha. A meal would therefore, as stated in the *Shivatattvaratnākara*,[51] start with a sweet item (though madhura has a very wide connotation, and includes cereals and pulses), continue with sour and salty preparations, and finish with pungent, bitter and astringent items.

In practice, all six tastes (except perhaps for the distinctly bitter) can usually be savoured at, say, a formal wedding feast in most parts of India. However, considerations of texture and mouthfeel may overlie a purely taste progression. Thus in a meal eaten in *c.* AD 1000, described in the *Bhavissayattakaha*,[6k] at which King Shrenika was present, it was the sensory attributes that prevailed. First were served fruits which could be chewed, like the pomegranate, grape and bēr, followed by fruits that could be sucked, such as pieces of sugarcane, dates, oranges and mangoes. Food items to be licked constituted the third course, and solid sweet items like sēvaka, modaka, phenaka and ghrtapūra made up the fourth. The fifth course consisted of boiled rice, and the sixth of broths that had to be drunk. Curd preparations constituted the seventh course, and the last course was of thickened, sweetened milk flavoured with saffron. While taste variations were clearly prevalent, texture was emphasized.

In south India, a wedding lunch served on a large banana leaf has cold items laid out in specified positions, like salt, pickle, curd-based relish, pāpad, vadāi, bōnda, a dry vegetable like beans, a dry sweet and a small serving of say vermicelli pāyasam, which will be licked to start off the

meal. In, say, Karnataka,[296] rice is served, and small amounts are eaten with the curd relish, the dry vegetable and a thovvē (a yellow, practically unseasoned dhāl). Ghee is then poured on the rice, which is eaten as a first course with a thicker dhāl dish of huli (sāmbhār) and other mixed vegetables. Rice is served again and the second course eaten with a thin dhāl extract, saaru (rasam), and vegetables. Occasionally a pre-mixed chitranna (lime rice) or bisi-bēlē-hulianna (composite dhāl and rice, in Tamil sāmbhār-sādam) could replace the boiled rice. Next is served the sweet item, frequently pāyasam in a leaf cup, or a pasty sweet like kēsaribāth (q.v.), or a solid sweet like jilēbi (q.v.) or Mysorepāk (q.v.). All along a change of taste and texture is provided by pinching off and munching bits of the vadāi or bōnda. Finally, to soothe the palate and quench thirst will follow a fresh serving of rice eaten with curd or buttermilk, or a premixed curd-rice preparation like mosaruanna (thayiru-sādam in Tamil). A betel quid will frequently bring a heavy meal in south India (and indeed anywhere) to a close.[296]

In Bengal a bitter item, shukto, is included at the start of the afternoon meal.[91] Sweets are served at the very end. Meals are served on a circular thāla of bell-metal, with side dishes placed around it in bātis (bowls). Salt, chutney, lime, and various fried vegetables are always in place on the plate. Rice is normally eaten first with ghee, salt and green chillies; then comes dhāl accompanied by fried vegetables (bhājā) or boiled vegetables (bhatē), followed by spiced vegetables like dālna or ghonto. Fish preparations follow, first lightly spiced ones like the liquid māccher-jhōl, and then those more heavily spiced, after which comes a sweet-sour ambal or tauk (chutney) and fried pāpads. A dessert of either mishti-doi (sweet curds), accompanied by dry milk-based Bengali sweets (q.v.), or of a pāyesh (say, of rice and thickened milk) accompanied by fruits like the mango, ends the meal. A terminal digestive paan is certain to follow.[91]

The night meal omits shukto, but could include deep-fried wheat lucchis (*see* rōti), a palāo, and a dālna of delicately spiced vegetables.

Other regional meals include their own characteristic preparations, but a variety of tastes and textures are always in evidence.

meat consumption As humanoid characteristics developed, *Homo erectus* moved away from a diet of fruits and nuts, and fashioned tools (q.v.) of increasing refinement that facilitated the task of capturing animals and fish for food. As food cultivation advanced, both animal and vegetable foods came to be eaten, especially in a fertile tropical country like India.

Excavations in the Indus Valley have brought to light a wide range of animal bones: of zebu cattle, gaur and buffalo, sheep and goat, turtle, tortoise and gharial, river and sea fish,

fowl and game birds.[8Am] Clay models of many animals furnish further evidence of their presence. The Aryan civilization that followed from *c.* 1500 BC used animal flesh extensively in its early stages. The *Vedas* refer to more than 250 animals; of these about 50 were deemed fit for sacrifice and, by inference, for eating.[13c] These included domesticated animals like cattle and swine, wild animals, and some that were trapped or caught using decoys. Hooks, nets and basket traps were in use to capture fish and turtles, whose flesh and eggs were relished.[13c] The marketplace had separate stalls for vendors of various meat: gōgataka (cattle), arabika (sheep), shukarika (swine), nāgarika (deer), shakuntika (fowl) and giddabuddaka (alligator and tortoise).[14c] It is strange that ducks, tame poultry, and their eggs do not find a place in these transactions, and a taboo against their consumption is voiced in Sanskrit literature (*see* chicken; eggs).

In the *Rigveda*, horses, buffaloes, rams and goats are all described as being sacrificed for food.[11] The elaborate ajapanchāndam sacrifice of a male goat is laid down, the meat being cooked in cauldrons.[11] The 162nd hymn of the *Rigveda* dwells on the elaborate horse sacrifice, ashvamēdha (q.v.),[60] with details of how the meat was to be shared by various priests and participants.[79] Bulls and barren cows were favoured by Agni, a dwarf ox by Vishnu, a drooping-horned bull with a blaze on the forehead by Indra, a black cow by Pushan, and a red cow by Rudra.[78] Indra is exhorted to cut down his adversaries 'just as cows are butchered at the place of sacrifice'.[60] Both the *Shatapatha Brāhmanā* and the *Yāgnavalkya Samhitā* specify that for a special guest, a big ox or big goat be sacrificed.[78] According to Panini, a new word, gōgna, was coined by compounding the words for bull and kill to signify a guest so honoured.[78] The *Taittirīya Brāhmanā* praised Agasthya for his sacrifice of a hundred bulls.

The use of sacrificial meat continues in the period after 800 BC. The *Grhya Sūtras* prescribe that at the weaning ceremony called annaprasanna, when a child is given food other than milk for the first time, the kind of meat served will influence its subsequent nature. Ram's meat would confer physical strength, partridge meat saintliness, fish a gentle disposition, and rice and ghee glory.[13,37] The *Jātaka* tales at various points mention the flesh of the pigeon, partridge, monkey and elephant as being eaten, and to this the *Brhat Samhitā* (sixth century AD) adds buffaloes and lizards.[38] At a shrāddha ancestral ceremony, khadga or rhinoceros flesh, and even vessels made of rhinoceros bones, had a special sanctity, according to the *Āpasthamba* and *Baudhyāyana Dharma Sūtras*.[297] The eating of meat at this ceremony was very meritorious according to the *Vishnu Purāna* (third/fourth century AD), and

meat consumption

the meats listed, of which both priests and participants partook, were those of the hare, goat, hog, antelope, deer, gāyal and sheep.[38] The *Charaka* and *Sushrutha Samhitās* contain formidable lists of edible meats,[24,33] some of which are mentioned below.

Meat was considered a nourishing food, particularly recommended by Charaka for the lean, for convalescents, for those subjected to very hard work, and for men. The meats that were highly rated were those of the goat, hare, tortoise, parrot, quail, partridge, peacock, alligator and rōhita fish.[81] In winter, when the digestion (agni) was strong, or in all seasons for those with naturally strong digestive systems, Charaka recommended the flesh of creatures that darted on their prey; those that lived underground, in marshy places or in water; or those that walked on water.[6f] According to Sushrutha, the consumption of seasoned meat every day was not conducive to good health.[6f] Vaghbhata recommends, as winter season foods, fat meat and rich broths.[77] During convalescence, boiled rice with lightly seasoned meat was prescribed by Sushrutha.[33] In tuberculosis, the flesh of the crow, vulture, mongoose, cat, cormorant or beasts of prey, cooked in mustard oil, was prescribed by Sushrutha; the alternative choices were the flesh of the camel, ass, elephant, mule, horse or forest-dwelling herbivores. Asthma needed the extracts of chicken, pigeon and wild fowl, cooked with large quantities of acid juices, salt and ghee.[33]

Jains are strongly against taking any form of life, even of unseen forms like micro-organisms, so the question of meat consumption simply does not arise (*see* Jain food ambience). Buddha did not prohibit the consumption of meat, especially if it was offered to a monk as alms (*see* Buddhist literature and food).

In south India, meat consumption was widely prevalent prior to the arrival of the Aryans in about the sixth century BC. Even thereafter, the famous brahmin priest of the Sangam apoch, Kapilar, speaks with relish,[101] and without fear of social ostracism,[102] about consuming meat and liquor. Old Tamil had four names for beef, namely valluram, shuttiraichi, shūshiyam and padithiram, showing that it was widely eaten. The *Perumpānūru* talks of a fat bull being slaughtered in the open.[83] Even buffalo meat was consumed. There were fifteen names for the domestic pig, and the wives of traders who lived in the coastal neydal regions are shown as relishing pork.[101] Wild boar, rabbit and hare were hunted using dogs and nets.[83] Captured boars were fattened with rice flour and kept away from the female to improve the taste of the flesh.[72] Even meat from an elephant either killed in battle or hunted down was dried and stored for consumption.[101] The Kuruvar class liked the meat of deer and porcupine, the Mallar fried snails, and the Meenavar the tortoise.[101] A dish of 'iguana red meat big with ova

resembling chank shell beads' is eaten with obvious relish.[101] There was no taboo, such as prevailed in north India, on eating the domestic fowl (called karugu or kozhi). Another bird frequently mentioned is the pea-fowl,[205a] and both the quail and partridge were eaten. A king is described as feeding his labourers with choice dishes like the 'rich roast flesh of lampreys' and the fat of turtles.[205b] Fish was naturally relished by folk of the littoral: aral, varal and the horned valai are mentioned, besides prawns that were captured by the fisherfolk, the Meenavar.[101] In fact the Tamil word meen (q.v.) for fish even entered the Sanskrit language. A wandering minstrel was served red rice and iguana flesh by hunters; white rice and roast fowl by agricultural labourers; and rice and fried fish by fishermen.[72] Another meal consisted of white rice with curried crabs and vegetables.[83]

Right from the start visitors to India noted that many abstained from meat consumption. The Greeks mention a king who hunted for exercise, but, being a vegetarian, gave away all his spoils.[221] Fa Xian noted that 'only the Chandālas go hunting and deal in flesh. Throughout the country no one kills any living thing . . . they do not keep pigs or fowls, there are no dealings in cattle, no butcher's shops'.[19d] Xuan Zang was more accurate: 'fish, mutton, gazelle, deer they eat mostly fresh, sometimes salted; they are forbidden to eat the flesh of the ox, ass, elephant, horse, pig, dog, fox, wolf, lion, monkey and all the hairy kind. Those who eat them are despised and scorned, and are usually reprobated; they live outside the walls and are seldom seen among men.'[19a] A very early European visitor to India, John of Monte Corvino (AD 1292), noted that the people of India ate no meat,[29c] and Francisco Pelsaert (AD 1625) reported that 'workmen in India know little of the taste of meat'.[16b] Yet Sebastian Manrique noticed in the bazaar of Lahore 'large spits bearing the flesh of winged creatures'.[20c] Francois Bernier commented on the abundance of meat and fish in Bengal,[8Bd] and numerous visitors said the same of Vijayanagar.[298] Those in a stupor after taking opium, Father Monserrate noted, ate pulses and sweet foods, but avoided eating meat[106c] (*see also* beef; meat dishes; fish).

meat dishes Though Sanskrit literature from the *Rigveda* (*c.* 1500 BC) onwards mostly has oblique references, these do throw some light on the ways in which the flesh of various animals and birds was cooked in the northern part of the country. Tamil literature from about the third century AD reflects the southern ambience of preparing meat for consumption. Most current regional cuisines can be viewed broadly in one of these two historical lights. A third major force that came into India was the Muslim presence from about AD 1000, which had a strong impact on the styles of cooking meat that now

prevail in many regions of the country.

The *Rigveda* refers to meat being boiled in pots or roasted on spits, and the *Brhad Upanishad* refers to meat cooked with rice.[6a] From *c.* 400 BC references are made to dressing meat with salt and pepper, to frying meat, and to broths or soups of meat.[6c] The *Arthashāstra* of *c.* 300 BC gives the quantities of materials needed to dress 20 palās (perhaps about 700 grams) of meat; oil one kumbha (*c.* 250 g), curd two-thirds of a kuduba (*c.* 175 g), salt one palā (*c.* 35 g) and spices one fifth of a palā (*c.* 7g).[6d] The *Rāmāyana* notes that rice cooked with venison and vegetables, termed māmsabhutadāna, was a popular dish with Rama, Sita and Lakshmana while exiled in the Dandakaranya forest,[81] while broths of pork and mutton cooked in acid fruit juices, termed sūpa and nisthana, were preparations relished in Ayodhya.[6e] At the sacrificial rites of Rama's father, King Dasharatha, mutton, pork, chicken and peacock were cooked in several ways: boiled in fruit juices, or fried in ghee, or simmered along with cloves, caraway seeds and masoor dhāl.[187] In the *Mahābhārata*, a dish of rice cooked with minced meat is termed pistaudana. Roasted birds figure frequently in the epic. For a picnic dinner, meat was roasted on spits and cooked as a curry; young buffalo calves were roasted on spits while being basted with ghee; buffalo beef was fried in ghee and seasoned with acid juices, rock salt and fragrant leaves; haunches of venison were boiled in different ways with mangoes and spices, and sprinkled over with condiments; and shoulders and rounds of animals, dressed in ghee, were sprinkled with sea salt and powdered black pepper, and garnished with radishes, pomegranates, lemons, fragrant herbs, asafoetida and ginger.[58]

The *Sushrutha Samhitā* describes seven types of meat preparations.[299] Sour meat was prepared using ghee, curd, soured rice gruel, acid fruits and pungent and aromatic ingredients. Dried meat, when roasted, yielded parisukha-māmsam. The third type of meat was mince meat, ullupla-māmsam. Fried fresh meat was bharjitha, and ground meat shaped into patties and balls was known as pishtha. A dish called pratāpta was obtained by roasting meat over a charcoal fire while basting it with ghee. The seventh type of meat was vesavara, frequently used for stuffing; to make it, boneless meat was boiled and then ground fine, and cooked with such ingredients as ghee, molasses, black pepper and ginger in various combinations. The *Mānasollāsa* of King Someshwara in the thirteenth century gives pride of place to meat dishes in the chapter on food, annabhōga.[49] Liver, carved into the shape of betel nuts, was roasted on charcoal, fried with spices, and eventually placed in curd or in a decoction of black mustard. Roasted tortoise, seasoned fish and fried crabs are noted. A whole pig was first

roasted; subsequently pieces were carved out of the roast and charcoal-broiled. These sunthakas were eaten after being either seasoned with rock salt and black pepper, or sprinkled with sour lemon juice to yield chakkalikas. Other sunthakas could be carved out of the roast in several ways. One was in long strips 'resembling palm leaves' which were placed in spiced curds. Another was a preparation called mandilya made from pig entrails, by mixing them with marrow and spices, and broiling them on a charcoal fire. A marrow preparation ('khanda of vapa'), it is stated, should be kept in a roll 'like a panchānga' (an astrological document). In one of the recipes, meat pieces were mixed with a paste of gram pounded with spices and then fried; to this was added tender hyacinth beans (nishpava), certain berries, onions and garlic, and the whole mass was mixed with some acid juice and flavoured. Kavachandi was a less acidic preparation, in which plum-shaped pieces of sheep mutton, mixed with gram or sprouted mung and powdered spices, were fried along with garlic, onions and vegetables like the brinjal and radish. Another dish, puryala, specifies pieces of meat carved in the shape of āmla fruits, which were cooked in spices, and cooked again with certain acid fruits, roasted pieces of pork, spices and rock salt, flavoured with garlic and asafoetida. To make krishnapāka, sheep mutton (in the shape of betel nuts) and blood were cooked together to give a dark, dry dish. Bhaditraka was a roast product: pieces of meat were bored, stuffed with spices, roasted on spits and then spiced again; sometimes, after cooking, the roasted bhaditrakas were allowed to dry out, and later fried in ghee. Ground meat was used to stuff brinjals, which when fried yielded pūrabhattaka. A strange item was 'peculiar mice that lived in the fields near rivers'.[49] Such mice are even now an off-season food of the villagers in the Mandya district of Karnataka.[300]

In south India, the earliest writings available are those in Tamil (q.v.), from about AD 300. An important component of meat dressing was black pepper; one of its names was kari, which was also used for the finished spicy dish. Meat was marinated in ground pepper and mustard seeds, and then fried in oil to yield thāllitakari, or kuy.[69] Fried meat had three names, one of which was porikari; hare meat was among those fried.[83] Meat boiled with pepper and tamarind was pulingari or tuvai,[69] and such meat could be ground and spiced to give a pasty relish.[101] The meat of various animals was roasted extensively. We read of 'hot meat, roasted on the points of spits',[39] and in the *Porunānūru* of 'fine large pieces of fat meat roasted on iron spikes'.[83] The basting of a roast is poetically described: 'Like drops of rain that fall in the full lake : Drips down the fat from the meat served up.'[205c] The same verse continues

with the line: 'Roasted flesh is carved and eaten', which suggests that large joints, or whole animals, were roasted. Roasted meat was valued for its taste.[39] References to various meats abound: 'the roasted flesh of the fowl',[72] 'the rich roast flesh of lampreys',[205b] and the 'fat meat of roasted rabbit', served as a side-dish to a meal of rāgi.[86c] Rice could be cooked along with fatty meat.[83]

A new impulse and innovations in the cooking of meat came with the arrival of conquerors from across the north-western borders of the country, starting from about the second millennium AD. The food items that appeared at the royal court and among the nobility of the Sultanate empire in Delhi are described by Ibn Battuta in the thirteenth century AD.[53] At various meals were served shiwawoon (roast meat), roast mutton and a roast of whole sheep. The birds that were roasted were chicken, quail and sparrow (kunjshakka), and a dish of rice cooked in ghee, with a roast fowl (dōjāj) placed on top, is described as 'palāo with murg mussālam'. Meat is described as being cooked with ghee, onions and green ginger, and a popular side-dish was 'samusak', a fried envelope of wheat stuffed with minced meat cooked with almonds, walnuts, pistachios, onions and spices[53] (*see* samōsa).

We have considerable culinary details of Akbar's kitchen in the *Ain-i-Akbari* written by Abul Fazl (AD 1590).[28] Of the three classes of food described, safiyāna was meatless dishes for the emperor's days of abstinence from flesh, which were quite numerous. The second class was composite dishes of rice, or wheat, with meat, and some of the recipes given are of interest. In recording the quantities of ingredients, a sēr (roughly a kilogram) is denoted by s; d means dām, a copper coin of weight 30 grams; and m stands for misqāl, another tiny coin of about 3.5 grams weight. To make qābuli the following ingredients were required: rice 10 s, meat 2 s, ghee 3 1/2 s, dehusked gram 1 s, onions 2 s, salt 1/2 s, fresh ginger, cinnamon, round pepper, cumin seed each 1 d, cardamoms and cloves 1/2 d each, almonds and raisins optional. Drzd-biriyāni needed rice 10 s, meat 10 s, ghee 3 1/2 s, salt 1/2 s, so there is much more meat in this than in the previous recipe. Shulla required the following: rice 3 1/2 s, meat 10 s, ghee 2 s, gram 1 s, onions 2 s, salt 1/2 s, ginger 1/4 s, garlic 2 d, round pepper, cinnamon, cardamoms, cloves 1 d each; this was essentially a spicy meat dish with some rice. The dish halīm contained crushed wheat 5 s, meat 10 s, ghee 1 s, gram 1 s, onion 1 1/2 s, salt 1/4 s, ginger 1/2 s, cinnamon 1 d, saffron, cloves, cardamoms, cumin-seed 2 m each, turnips, carrots, spinach, fennel 1/4 s each. This was a ground pasty dish best eaten with rōtis. The third class of food described in the *Ain-i-Akbari* consists of various

meat dishes, some of which may be noted. Yakhni needed meat 10 s, onions 1 s and salt 1/2 s. To make musamman, all the bones of a fowl were to be removed through the neck, leaving the fowl whole, after which the recipe called for minced meat 1/2s, ghee 1/2 s, eggs 5, onions 1/4 s, coriander 10 m, fresh ginger 10 m, salt 5 m, round pepper 3 m, saffron 1/2 m (this melange was clearly meant as a stuffing). Dupiyāza called for meat (of middling fat) 10 s, ghee 2 s, onions 2 s, salt 1/2 s, fresh pepper 1/8 s, cuminseed, coriander seed, cardamoms, cloves 1 d each, pepper 2d.[53] Not long after this, Edward Terry, chaplain to Sir Thomas Roe, lauded the dish dupiyāza at the court of Jahangir, describing it as 'venison cut in slices, to which they put onions and herbs, some roots, with a little spice and butter: the most savoury meat I ever tasted, and do almost think it is the very dish that Jacob made ready for his father, when he got the blessing'.[82]

Current regional cuisines have adapted these inherited legacies to local materials and tastes, sometimes incorporating external influences. Thus the Kodavas of Karnataka cook a wet chicken curry with a lot of fresh coconut. Pieces of pork are cooked slowly in a very thick masāla in which an essential component is the black, sun-drawn extract of the kokum fruit (*Garcinia indica*), locally known as kāchampuli, the acid content of which serves to keep the fat firm and crunchy. In Goa (q.v.), the souring agent can be kokum, but vinegar is also widely in use, and the pork dishes show Portuguese influences. One is the distinctive Goa sausage, chourisam, developed by Portuguese monks. Vindāloo is a liquid pork curry of pork meat, liver fat and blood, with vinegar and tamarind juice. Feijoada is pork cooked with beans, and pork that is to be pickled is first salted. A shallow-fried dish of meat or chicken is termed chacuti. In Kerala (q.v.), the Syrian Christians have created a range of beef dishes. A dry dish of beef chunks and coconut pieces fried with no extraneous fat is eracchi-olathiyathu (fried meat)— a wedding special. To make eracchi-thōran, cubed beef is first boiled with vinegar and salt, then shredded on a grinding stone, lightly fried with spices, and steamed after adding a coconut-masāla mixture to it. Kappa-kari has pieces of tapioca in the beef, and is fried in oil. Many meat curries use a lot of coconut milk. Parsi food (q.v.) shows a blend of Gujarathi and Iranian cuisine. There is a distinctive sweet palāo of rice and mutton, and dhansākh is a mixture of at least three (and even up to nine) pulses, distinctively spiced, with added meat, tripe and vegetables. From the local vegetable dish ūndhiu, baked underground in a handa, has emerged the Parsi ōberu, to which the meat of game like quail is sometimes added.

In many regions of India, Muslim communities have built on styles that

stem from the imperial kitchens. Kabābs (shammi, sheekh, tikka, husseni) are popular everywhere, as are regional-style palāos and biriyānis, haleem and shulla. Bohri Muslims in Gujarat have a special palāo of rice with meat and split peas; lagania-sheekh is a baked dish of minced meat topped with a beaten egg; and malāi-tikkas are kabābs of beef that have been marinated in cream. Hyderabad (q.v.) meat dishes have likewise developed a local ambience. An early-morning speciality is narahari, a stew of lamb trotters and tongue, cooked slowly all night, and eaten early in the morning with kulcha or sheermal rōtis. In the kacchi-biriyāni of Hyderabad the rice is firm and the chunks of meat cooked almost to disintegration, with an irregular saffron staining of the rice. Full-boiled eggs in a minced meat coating constitute nargisi-kofta; when cut in two, the golden yolk surrounded by egg white against an earth-brown meat edging recalls the narcissus flower (nargis) against bare earth. Chakna is a dish of offal, and dālcha is lamb stewed with beans and tamarind. Lukmi is like Italian ravioli, small squares of soft pastry filled with spiced meat, and deep-fried. Frequently, mutton and chicken, and almost always palāo, will be baked in a seal of dough, a technique termed dumpukht (q.v.). Very rich meat dishes characterize Kashmiri cuisine. The Mughal lamb dish yakhni is cooked in curds, and aab-gosht in milk. Rōghan-jōsh is flavoured with mēthi, ginger, saunf, and asafoetida, and coloured red (hence its name) with the dried flowers of the cockscomb. Minced lamb is marzwangan, and gōli and rishta are balls of ground meat. Very finely ground minced mutton gives the silken meat loaf, goshtaba. At a special mishani dinner, prepared, say, for a wedding, exactly seven dishes, all of lamb, are made by specialist cooks. From rib chops is made the dish tabakmaaz, and shikār is duck cooked with vinegar, garlic and chillies. The Dogras of Kashmir have a distinctive sri-palāo (*see also* meat consumption, kabāb, palāo).

meen Tamil term for fish, which entered the Sanskrit language at an early date, to complement the earlier term matsya. Thus Meenakshi is the fish-eyed goddess of Madurai.

melōgara A class of savoury preparations of various dhāls with vegetables, which figures prominently in historical Kannada literature on food. According to Gurulinga Desika, in his *Lingapurāna* (AD 1594), 'eating-pleasure comes from various kinds of melōgara'.[67b] To make it, mung dhāl, urad dhāl, fresh chana, thuvar dhāl or avarai beans (*Lablab purpureus*) were first cooked with sesame seeds, then cooked again with greens, drumsticks, chakota (grapefruit), salt and coconut gratings, and finally mixed with ghee and tempered with asafoetida and thick milk. Even thin strands of fried wheat dough could go into melōgara. Each vegetable added to the melōgara was

treated differently.[261] Certain leaves were washed in lime water before being cooked, other leaves in turmeric water, and yet others with common salt or saline ashes. The giant yam, sūrana, was first boiled with betel leaves, soaked in rice water, and then cooked with tamarind leaves. A melōgara of this kind, with dhāl and vegetables as basic ingredients, could be sweet, spicy or sour in taste[261] (*see* Karnataka, food of).

melons There are two main melons in India. The popular musk melon or kharbuza probably originated in Africa, but *Cucumis melo* exploded in terms of variety only after reaching India.[7n] The best melons in historic times seemed to have been grown from imported (Persian) seed, and were probably the ancestors of the two best-known types raised today,[20r] the Honey Dew of Lucknow and the Cuddapah melon of the south, both grown on the dry beds of rivers or lakes before the rains, with a lacy overlay on the creamy skin.

Seeds of some variety of melon were found in a pot in Harappa.[164] Xuan Zang mentions the fruit in India,[100a] and Patrick Copland while in Dhaka, received from the nawab a gift of 'Persian melons'.[20d] Linschoten remarked that the melons of India were less sweet than those of Spain, and needed to be eaten with sugar.[130b] Babar lamented the lack of good melons in India, and when one was brought to him, felt acutely homesick, and was 'close to tears'.[146] Obviously the quality of melon improved over the years, probably through imports of quality seeds, because Jahangir mentions that in Kashmir they were 'very sweet and creased ... varieties of the best kind can be obtained', noting the same at Kistwar also.[8Bk]

The water-melon belongs to a different family, *Citrullus lunatus*, which again is of African-Indian origin. It must have come to India in prehistoric times, since even the Sanskrit name, kalinda, is thought to be of Munda origin.[6j] Early European visitors to India called it either by its Portuguese name pataca or its Arab name bathiec, which is probably of earlier origin, since it is also used in the *Ain-i-Akbari*.[2p] The origin of the Hindi name, tarbūza, is uncertain (*see also* gourds).

methi *See* fenugreek.

Mexico, food materials from For thousands of years, Mexico was a cradle of plant development. Many of these plants then spread elsewhere in Central America, and onto the South American landmass as well. Once Columbus reached the New World, which almost coincided with the arrival of Vasco da Gama in India, many of these food plants (and at least one animal, the turkey, q.v.) were consciously carried on Spanish and Portuguese ships, with commercial intent, from the New World to the Old.

The Portuguese slave trade was between Brazil and Africa, and thence to Goa. The Spanish plied between Mexico, Brazil and the

home country, and from there to the orient. Once the Spanish had conquered the Philippines, the latter became an entrepot for merchandise from South America to areas being colonized, or to other eastern countries. Thus a commodity could enter India from a westerly or an easterly direction, and at different places and times: this certainly happened with the groundnut, papaya and tobacco.

The food materials that entered India from the New World may now be noted; individual entries will furnish more details of: amaranths, cashewnuts, chilli, cocoa, some gourds, groundnuts, the haricot bean (*see* rājmah), maize, mat bean (?), papaya, sapota, sītaphal, sweet potato, tapioca, tomato and turkey.

mice The *Mānasollāsa*, written in the twelfth century AD, mentions as an edible item 'peculiar mice that lived in fields near rivers'.[49] In Kozhikode, Varthema (AD 1508) noted that as an item of food (besides venison, goat and fish) mice were permitted to the Nairs or landed gentry.[29a] In modern times, a sociologist has noted that mice are an off-season food of the villagers in the rural areas of Mandya district in Karnataka.[300]

milk The Aryans have a strong association with cows and dairying. However, even before their arrival in India, there is indirect evidence of the prevalence of dairying in the magnificent bull and cattle seals of the Indus Valley civilization (2500–1500 BC). In particular, the famous seal of a hump-backed, heavily dewlapped bull, identical with the Kankrej breed of today, bears testimony to a well-developed animal husbandry, with almost certainly a knowledge of milk (and meat) as food. Thereafter, even the earliest Aryan Vedic literature is replete with references to dairying. Milk was an important food; it was used even as it emerged warm from the udder (it was considered already cooked), or after boiling, or as a gruel with parched barley, or with soma juice (q.v.) at sacrifices.[6a] Early on, colostrum drawn for the first ten days was interdicted; later, taboos were extended to the milk of a cow in heat, a pregnant cow, and a cow that was suckling the calf of another cow.[6a] The curdling of milk was well established (*see* curds), and a favourite preparation, termed payasya, was milk mixed with dewatered curd, sugar and spices.[6b]

Milk was a food favoured even by break-away sects like the Buddhists and Jains. As with all liquids, Jains were obliged to strain milk through a muslin cloth before drinking it.[68] A novel procedure in use by Jains was to soak cloth in milk and then dry it, reconstituting this when needed to a product called kholas.[39] Foods with which to break a fast have a special place in the Muslim ethos, and milk is one of them.

Though the prime source of milk was of course the cow, termed vara or blessing, both the buffalo and goat are mentioned in Vedic literature.[6a]

In addition to these, the *Sushrutha Samhitā* refers to the milk of the sheep, camel, mare, elephant and human being.[34] Milk in medical terms was considered sweet, heavy, fat and cooling, generally strengthening and tranquilizing.[34] It contains the essence or rasa of many plants, and is a life-giver, particularly good for children and the elderly, the convalescent and the weak. Cow's milk is an elixir of life, with a suppressing action on all three dōshas (q.v.); it must be drunk warm, and is particularly beneficial at night. In dysentery, milk is as valuable as ambrosia. Buffalo milk is more cooling than milk of the cow, but tends to impair digestion. The milk of goats is valued for infants, and so is the milk of the ass. Sheep milk is sweet, fat and heavy and is believed to relieve bronchitis and gout; it should always be boiled and drunk hot. Mare's milk is strengthening and not very fat. Human milk, consumed only cold, is medicinal, and particularly recommended for eye complaints.[34]

Among the milk of other animals is that of the zomo, a cross between a yak and a cow, which is in use in Kashmir. Jahangir sampled the milk of a female antelope, pronounced it 'palatable', and added: 'They say it is of great use in asthma.'[8Bf] The lifestyle of the Todas of the Nilgiri hills of south India is centred around the rearing of buffaloes and the ritual use of buffalo milk that is made into ghee.[304a]

Milk has a very special conceptual niche in Indian cooking. Milk emerges hot from the udder, and is considered to be the sperm of Agni, the god of fire, and hence naturally cooked.[144A] Again, its further treatment by fire (heat) is believed not to alter its qualities, so culturally milk is neutral (this is also true of ghee). The use of milk as an ingredient in cooking results in food which has considerable restrictions on sharing. The two major divisions of Indian cooking are cooking without fire, and cooking with it (*see* cooking). Milk has a place in both. Thus the two great ambrosial beverages, madhuparka and panchagavya, use milk and both are uncooked. Yet another auspicious food, paramānna, is a cooked food of boiled rice, milk, ghee and honey, which is given to a child at the weaning ceremony, annaprasanna. The capacity of milk to boil over gives it significance as an agent between man and god.[144A]

Historical literature contains a range of uses of milk. The ways in which it was used in Vedic times have already been mentioned. As an accompaniment to the main meal, vatakas (vadās) soaked in milk and curd were served at a feast described in the *Apabrahmsatrāyi*.[6k] In south India, rice āppams were served with sweetened milk, referred to in the *Perumpānūru*.[39] In the Kannada work *Jaimini Bhāratā* by Lakshmeesha dated AD 1700, a milk-curd relish, kacchadi, is mentioned.

Milk could be used as a cooking

ingredient. A sweet preparation of rice cooked in milk is termed pāyasa or kshīrika even in Vedic literature.[6a] King Yudhisthira in the *Mahābhārata* fed ten thousand brahmins with various choice dishes, which included cooked preparations of rice and milk mixed with ghee and honey.[187] Kheer (q.v.) and pāyasam (q.v.) are even now exceedingly popular sweet confections in many homes all over India. In Rajasthan the item is termed bākir or rasiya,[281] and in the Muslim ambience sheerbirinj. In the thirteenth century Ibn Battuta recorded that the grain shamak (shyamaka, *Echinochloa frumentacea*) was cooked in buffalo milk; 'it is pleasanter prepared this way than baked as bread: I used often to eat it in India and enjoyed it.'[8Bb] A wandering minstrel in south India in ancient times was served by shepherds with millet cooked in milk,[72] and elsewhere we read of 'vegetables cooked in milk',[83] a practice hardly in use now.

For making various rōtis from wheat flour, milk is sometimes used in the flour to yield distinctive products. The large, very thin and brittle khākras of Gujarat need milk in the dough to be rolled really fine. Milk is also added when kneading the flour to make sheermal, the sweetish and almost powdery flat bun of Hyderabad.

Derivatives of milk find mention throughout Sanskrit literature. Curds were dadhi, cream santanika, butter navaneetha, buttermilk udasvit and ghee ghrta, and all were consumed daily. In south India, even as early as in 2000 BC, very large herds of cattle were stocked in pens; the dung was burnt from time to time to yield huge mounds of ash that appear in archaeological excavations.[301] Both meat and milk must therefore have been in use. Classical Tamil literature of between the third and sixth centuries AD mentions most milk products: cream (edu or perugu), curds (thayiru), buttermilk (mōru, and four other names), butter (vennai) and ghee (nai). The *Nachchinārkkiniyar* has a curious reference to the removal of all fat from milk using a 'medicine'; such milk was even sold, but pronounced 'worthless'.[302]

Milk can be thickened to various degrees by boiling down. Each product has its special use. The stages, noted by Keladi Basavaraja in the *Shivatattvaratnākara* (AD 1700) are panapāka (to half), lehyapāka (to one-third), ghutipāka (to one-sixth) and shakarpāka (to one-eighth). This last is the present khoa or mava, a base for sweetmeats (*see* khoa). The boiling and cooling of milk causes a thick, creamy layer to form on the surface; this when skimmed off constitutes malāi or cream, usually eaten as such. If the milk is not stirred when being boiled down, films of coagulated milk form on the surface, which are set aside using bamboo splints.[145d] This constitutes the delicacy rabbri (usually sweetened) which is

described in Annaji's *Soundara Vilāsa* (AD 1700) as 'milk thickened by boiling till it fell in flakes'.[67b] Elsewhere we read of kenē-pāyasa, a sweet concoction of cream.[51] A feast for King Shrenika described in the *Bhavissayatakaha* (*c.* AD 1000) has as the last item some 'half-boiled milk' containing sugar, honey and saffron, which could mean a thickened milk preparation.[6k] Khoa, the ultimate thickened milk product, was termed hāl-undē (later pāl-undē) in the work *Lokōpakāra* (AD 1025) written by Chavundaraya in Kannada.[261] Early Bengali literature reveals the extensive use of khoa; the *Chandīmangala*[89] and *Chandidāsa Padavali*,[93] both written in the sixteenth century, mention numerous sweet items like manda, khanda, nādu and sandesh, all probably made from khoa (q.v.). The precipitation of milk with slightly acid whey or other acidulants yields solids in the form of chhāna; this is, especially in Bengal, the basis of innumerable sweetmeats (*see* Bengali sweets; chhāna). Solids obtained either by dewatering curds, or by the acid precipitation of milk, pressed under a weight into a flat slab, and then cut into cubes, constitute paneer (q.v.); this can be used as such, or fried to chewiness, or cooked in curries (say with peas).

Milk in course of time turns sour by fermentation and sets to a curd. Controlled fermentation yields a quality product, called dadhi in Sanskrit, dahi (q.v.) in Hindi and yoghurt in English. Dewatered curd, sweetened, spiced with cardamom, coloured with saffron and beaten smooth, gives the ancient confection shikharini; now called shrikhand, it is eaten as a sweet-sour dessert or as a dip for pūris. It is first mentioned in about 400 BC in Sanskrit literature.[6c] In Kannada the word shikarini occurs even in AD 1025 in the *Lokōpakāra*,[261] and shrikhand in AD 1594 in the *Lingapurāna* written by Gurulinga Desika.[67b] When diluted and churned, curd yields buttermilk, now called chhās (*see* beverages) and butter (q.v.); the latter on boiling down yields ghee, the major milk product of India, which merits a separate entry (p. 79).

millet Though originally used for the grain of *Panicum miliaceum* (the common or Proso millet, Sanskrit akusthaka, Hindi cheena, Tamil panivaragu) (*see* panicum grains), the term millet (often used in the plural) has acquired a general connotation of any small cereal grain, especially of the genus *Panicum* (gondli, samai), *Echinochloa* (shama, sanwa, sawank), *Setaria* (kāngni, thennai, bandra), *Eleusine* (rāgi) and *Paspalum* (kodra, varagu). Thus Ibn Battuta uses the Arab term meaning millet for *Echinochloa frumantacea*, shyāmaka, which he terms shamak.[8Bb]

Millet has been grown in most parts of India. Strabo of Amnesia (*c.* AD 20) states that it grew in the fertile land between the rivers Jhelum and Chenab.[18d] A south Indian market-

place described in early Sangam literature vended sixteen kinds of grain, which included millet,[72] and elsewhere in the Tamil country it is described as being eaten cooked in milk.[72] Ma Huan, the Chinese admiral, remarked on the abundance of millet in Bengal in *c.* AD 1400,[20a] and so did Fernao Nuniz in Vijayanagar a century and a half later.[8Bh] All millets are dwindling in importance at present as foodgrains.

milling A term applied to the grinding of cereal and pulse grains, oilseeds and sugarcane between hard, rough surfaces under pressure to effect either dehusking, or size reduction, or the expulsion of a liquid (oil or juice). The earliest crushing devices were stone saddle querns of various designs, flat, concave or convex, either shallow or deep. With these were paired separate stone grinders that were either round or cylindrical, and used either horizontally or upright.[63,277] The early Indus Valley civilization (2500–500 BC) had two types. One was more or less flat and went with a cylindrical muller rolled with both hands, a common grinding device in an Indian kitchen even today. The other had a shallow circular depression, and was used for crushing grain, rather than grinding it, with a rounded stone held in one hand. A four-legged quern of the latter type is depicted in a sculpture at Sanchi dated around 250 BC.[227] A later development consisted of a solid stone cylindrical base, on which revolved another heavy domed stone, which was operated by two women working a horizontal pole that passed through two holes opposite each other.[142,227] Only as late as in the early Christian era was the upper domed stone replaced by the now-familiar heavy circular stone with a single wooden peg at its periphery[217] called the chakki. This term clearly derives from the Sanskrit chakra for a turning device, by way of the Pali chakka.

Larger chakkis for commercial grinding consist of two heavy circular stones set slightly apart, one stationary and the other revolving. These could at one time only be worked either by hand for short periods or by using the power of running water, such as streams in the hills. From about AD 1880, chakkis that used oil engines at first, and later electric power, spread rapidly all over India for the commercial milling of both paddy and wheat. At Independence, there were some 10,000 powered chakkis for paddy processing, and 60 per cent of the wheat produced was processed in powered chakkis.[119i]

The second type of crushing device was the mortar and pestle pounder. Deep mortars firmly fixed in the ground and long poles for the pounding of grain were discovered even at Harappa and Mohenjo-daro.[142,225] A mortar in the shape of an hourglass, with a woman wielding a long pounder, is seen in a Sanchi sculpture (*c.* 250 BC) of a busy village scene.[129] The *Dasakumāracharitē*

written by Dandin between the sixth and seventh centuries AD graphically describes the pounding of paddy in a mortar made of arjuna wood (*Terminalia arjuna*), using a heavy pestle of kadhira wood (*Acacia catechu*) tipped with an iron ring,[104] while a Tamil work of the third century describes 'white rice, well-cleaned in pounders set in iron rings'.[83]

Another grain-milling device, which uses the foot, is the dhenki (q.v.).

Literary records also reflect the antiquity of grinding devices. Sanskrit terms for the flat grinding stone (drshād), its partner (drshād-putra), the mortar (ulūkhala) and pestle (musāla) are all perhaps borrowings into Sanskrit from even earlier Munda usage.[305]

In south India also, several neolithic sites of the second millennium BC have yielded grain crushers, milling stones, mortars and pestles.[228] The literary record is of very much later date than the records in Sanskrit, and so references in Tamil literature (q.v.) of the first few centuries of the Christian era have been considerably influenced by Sanskrit. Mortars of wood and stone to pound paddy and rice were called ural and ullukhal.[69] Grinding stones were frequently fashioned in animal shapes (for example, a tortoise) and had names like āttukal, thiruvai, ammi and kulavi.[69] So similar were these items to those in the north that a book written in south India in Sanskrit by Keladi Basavaraja as late as in AD 1700 employs the term gharatta for the grinding stone, besides pravani for the frying pan and kharpava for the griddle.[251]

Devices for milling sugarcane and oilseeds seem to have evolved out of the crushing devices just described. Current terms for these devices for milling both sugarcane and oilseeds are ghani, kolhu and chekku, all of which stem from Vedic Sanskrit words like gravan, ulūkhala and chakra (*see* ghani). The other device for crushing sugarcane is a roller mill with revolving corrugated cylinders; this appears to have originated abroad around AD 1500, based on a similar mangle device for removing seeds from cotton.[306] Modern oilseed crushers with a screw-worm working at high pressure in a barrel were developed about a century ago in America, and were first used in India in about AD 1914 in Navsari in Gujarat.[119f] At Independence over 600 factories using powered oilmills were in operation, which produced some 9 lakh tonnes of oil.[119f]

mint Indian mint, pudina, called field mint in English, is *Mentha arvensis*, a perennial herb native to hilly northwest India. European mint, now also grown in many parts of India, is *Mentha longifolia*. Mint goes into Indian chutneys and western-style mint sauces.[99l] Other *Mentha* species are the peppermint and spearmint, with mostly industrial outlets.

mirchi *See* chilli; pepper.

mishti-doi The sweet curd of Bengal. Milk is boiled down slightly, and caramelized sugar or palm jaggery is mixed in before setting the curd with a starter. This is often done in earthen vessels, which contribute a slightly earthy flavour and some degree of dewatering.

modak In earlier Sanskrit literature, modaka appeared to have the same connotation as ladduka, a sweetened ball of some sort (*see* laddu). It now signifies an envelope of rice or wheat, filled with a sweet stuffing, and fried or steamed. The term first occurs only as late as in the *Mahābhārata*[6c] and *Sushrutha Samhitā*,[6f] then around AD 1000 in the *Bhavissayatahaka*[6k] and again in the twelfth century in the *Mānasollāsa* by Someshwara.[49] In Tamil, the early *Mathuraikkānchi* written in *c.* AD 450 terms it moodagam,[72] and in sixteenth-century Bengali works it is modak.[53] The modak is considered a favourite food of Lord Ganesha; it is specially prepared on his feast day, Ganesh Chathurthi, and representations of the god frequently show him with modakas or laddus held in one hand.

Mughal period, food of One may start with the emperors and the imperial cuisine of the palace. Arriving in India in the summer of AD 1526, Babar lamented that his new country had 'no grapes, musk-melons or first-rate fruits, no ice or cold water, no bread or cooked food in the bazaars'.[146] 'The flesh of Hindustan fishes is very savoury,' he wrote, 'they have no odour or tiresomeness' (probably meaning a lack of bones). He commented most judiciously on the various food items that he encountered. The chironji (*Buchanania lanzan*), a small oily nut, 'is a thing between the almond and the walnut, not bad,' he noted. He carefully listed eight citrus fruits in India, the orange, lime, citron, santhra, galgal, jāmbiri lime, amritphal (perhaps the mandarin orange) and the amal-bīd. The jackfruit he likened most accurately to 'a sheep's stomach stuffed and made into a haggis (gipa) ... sickeningly sweet'. When given a melon, he was overcome with home-sickness: 'To cut and eat it affected me strongly; I was close to tears.'[146] Babar lived for only four and a half years after coming to India, and remained an alien to its cuisine. His son Humayun was more acclimatized, to the extent of even giving up animal flesh for some months when he started campaigning to recover his throne, and deciding, after much reflection, that beef was not a food fit for the devout.[80A]

Akbar did not care for meat and took it only seasonally, 'to conform to the spirit of the age', according to Abul Fazl, 'and because he had the burden of the world on his shoulders'.[28] He abstained from meat at first on all Fridays, subsequently also on Sundays, then on the first day of every solar month, then during the whole month of Fawardin (March), and finally during his birth month

of Aban (November).[28] He started his meal in true Indian fashion with curds and rice, and preferred simple food, though a variety of rich foods were prepared in the royal kitchen. Father Monserrate[106a] reported that

> his table is very sumptuous, consisting of more than 40 courses served in great dishes. They are brought into the royal dining-hall covered and wrapped in linen cloths, which are tied up and sealed by the cook, for fear of poison. They are carried by youths to the door of the dining hall, other servants walking ahead and the master-of-ceremonies following. Here they are taken over by eunuchs, who load them to the serving girls who wait on the royal table. He is accustomed to dine in private, except on the occasion of a public banquet.[106a]

Three classes of cooked dishes are described in the *Ain-i- Akbari*.[28] The first was called safiyāna, meant for the emperor's days of abstinence from meat. The dishes were made from rice (zard-birinj, khuskka, khichri and sheer-birinj), wheat (chikhi, essentially the strainings of wheat isolated by washing, and then seasoned), dhāls, pālak-sāg (spinach), halwā, sherbets and the like. The second class comprised those in which meat and rice were cooked together, like palāo, biriyāni (also a palāo), shulla (rice, dhāl and meat) and shorba (thick soup), or meat and wheat together (harīsa, haleem, kaskh and qutab, 'which the people of Hind call sanbusa'). The third class consisted of dishes in which meat was cooked with ghee, spices, curd, eggs, etc. to obtain such dishes as yakhni, kabāb, dōpiyaza, musamman, dumpukht, qaliya and malghuba (*see* meat dishes). Bread was of two kinds: a thick variety made from wheat flour and baked in an oven (naan or tandoori), and a thin kind made from either wheat or khushka by baking on an iron plate (chapāthi or phulka, 'tasting very well when served hot'). Rice for the royal kitchen came from Bharaij, Gwalior, Rajori and Nimlah; ghee from Hissar; ducks, waterfowl and certain vegetables from Kashmir; and fruits from all over the country and even from across the north-western borders. The delicious cold kulfi (q.v.) was made at court by freezing a mixture of khoa, pistachio nuts and kēsar (zaffran) essence in a metal cone after sealing the open top with dough.[28]

Jahangir, unlike his father, enjoyed meat, especially that of the chase. He was willing to experiment; 'I found the flesh of the mountain goat more delicious than that of all wild animals, though its skin is exceedingly ill-odoured, so much so that even when tanned the scent is not destroyed.'[8Bc] 'Though the flesh of the wild ass is lawful food and most men like it, it was in no way suited to my taste.' He found the milk of the antelope 'palatable ... they say it is of great use in asthma'.[8Bc] On two occasions, Sir Thomas Roe, ambassador to his court from England, received gifts of game from the emperor: on one

occasion this was 'a mighty elk' whose meat was 'reasonably rank', and on another a wild boar, with the polite request that the tusks be returned.[200] Despite his love of meat, Jahangir kept to his father's schedule of abstentions, adding to them all Thursdays (the day of his father's birth), and banning the slaughter of animals on Thursdays and Sundays.[80A] He seems to have given up fish altogether. A rich khichdi from Gujarat called lazizan, made of rice cooked with pulses, ghee, spices and nuts, was one of his favourite foods on days of abstinence from flesh. Another was falooda (q.v.), a jelly made from the strainings of boiled wheat mixed with fruit juices and cream.[80A] William Hawkins, a British visitor, reported that Jahangir kept many fasts during the year, of which two deserve special mention. One was to mark his father's anniversary, and the other was the 18-day fast that marked the Persian new year Nauroz.[134]

Aurangzeb was of spartan habits. Jean-Baptiste Tavernier,[307] who attended on him as a doctor, wrote that no animal food passed his lips; he became 'thin and lean, to which the great fasts that he keeps have contributed ... he only drank a little water, and ate a small quantity of millet bread ... besides this, he slept on the ground, with only a tiger's skin over him'. Nor did he ever use vessels of silver or gold, as was customary with nobility.[307]

Wine had a strong attraction for Mughal royalty. Babar enjoyed liquor, but had periodic bouts of abstinence, when he would break up his flagons of gold and silver and give away the pieces,[117] only to resume drinking and the use of bhang after telling himself: 'The new year, the spring, the wine and the beloved are pleasing; enjoy them, Babar, for the world is not to be had a second time.'[80A] A great tank was constructed from a single piece of stone in Dholpur; he had planned to fill it with wine, but when it was finished he was in a phase of abstinence, and filled it with lemonade instead.[80A] Akbar rarely drank wine, according to the Jesuit visitor Father Monserrate, and preferred post (bhang).[106a] He enforced prohibition in his court, but relaxed rules for European visitors because 'they are born in the element of wine, as fish are produced in that of water ... and to prohibit them the use of it is to deprive them of life'.[80A] Of his sons, both Daniyal and Murad died young from excessive drinking.[308] His other son, the emperor Jahangir, was addicted to wine, but did not drink on Thursdays and Fridays. However, by the end of his reign, he consumed fourteen cups of double-distilled liquor by day and a further six at night.[80A] Despite this, he enforced strict prohibition at court, and a European visitor, William Hawkins, was debarred from attendance when he appeared smelling of alcohol.[80A] Jahangir asked Sir Thomas Roe whether he would prefer a

natural grape wine or a 'made wine': he sampled the latter, which was strong and made him sneeze, to the amusement of the court.[56] To make this drink, arrack or rice spirit was put into an empty barrel that had held wine from Europe. The dregs of other wine barrels were added, together with water and sugar. After eight months, the contents had become a clear liquid that tasted somewhat like white wine.[56] Another wine was made by steeping raisins in rice spirit for three or four days, straining it, and then keeping the liquid in an empty barrel for six to eight months, adding an extract of dates for flavour and sweetness.[56] In his *Memoirs*, Jahangir describes a strong wine called sīr or achhi, ten years old, made at Pigli near Attuck, by fermenting together rice and bread.[56]

Shahjahan drank, but never to excess. Aurangzeb was of course a strict teetotaller, and in AD 1668 issued severe prohibition orders on all his subjects, Hindu and Muslim alike.[80A] On the other hand, his unmarried sister Jahanara Begum was extremely fond of wine; these were either imported from Persia, Kabul and Kashmir, according to Manucci, or distilled in her own home,'a most delicious spirit, made from wine and rosewater, flavoured with many costly spices and aromatic drugs', of which he was sometimes a recipient.[55]

The Mughal emperors soon came under the mystique of Ganges water (q.v.). Akbar termed it 'the water of immortality', and 'both at home and on his travels he drinks Ganges water', according to the *Ain-i-Akbari*.[28] While in residence in Agra and Fatehpur Sikri this water came from Sarun, and when in Punjab from Hardwar. 'For the cooking of food, rainwater or water taken from the Jamuna and Chenab is used, mixed with a little Ganges water ... His Majesty appoints experienced men as water-tasters.'[28] Jahangir continued these practices, and was very particular about drinking only the water of the Ganges. The French visitor Tavernier muses that 'considerable sums of money are expended to procure Ganges water' and that 'by many it is constantly drunk on account of its reputed medical properties'.[26Bb] This was in the time of Aurangzeb, who according to another French visitor, Francois Bernier, 'keeps in Delhi and Agra kitchen apparatus, Ganges water, and all the other articles necessary for the camp'. Elsewhere Bernier spoke with revulsion of the water of Delhi: 'it exceeded my powers of description (being) accessible to all persons and animals, and the receptacle of every kind of filth.'[29b]

Babar, as we have noted, lamented the lack of first-rate fruits in India, and took steps to grow melons and grapes which, when they bore fruit, 'filled me with content'.[146] By the time of Akbar, about fifty years later, the *Ain-i-Akbari* notes:

'Melons and grapes have become very plentiful and excellent; and water-melons, peaches, almonds, pistachios, pomegranates, etc. are to be found everywhere.'[28] Prices in the Delhi market of a remarkable number of fruits are quoted, including some like the pineapple (ananas) that must have come only recently to India from the New World. Fruits in Delhi came largely from Kashmir, with some from Kabul, Kandahar and Samarkand,[27] all of which had been at one time ruled by Babar. Jahangir noted that the 'sweet cherry, pear and apricot, so far imported, are now being grown in Kashmir through the efforts of my nobleman, Muhammad Quli Afshar', and that the oranges, citrons and water-melons raised at Kistwar were all of superior quality.[41] Pineapples were raised in the Royal Gardens at Agra (which Babar had laid out soon after reaching India), and nobles and peasants alike who raised orchards could have their revenues remitted. Owners of gardens could rent them out to cultivators and professional fruit-sellers, who could sell fruits for profit.[27] Fine specimens of mangoes collected from all over India were grown by Muqarrab Khan in his garden at Kirana; he also devised techniques to prolong fruiting, and served mangoes to Jahangir on 3 September on one occasion, and as late as on 17 October on another.[41] Grafting was applied to numerous fruits to improve their quality (*see* grafting; mangoes).

Even the nobility in Mughal times lived in great splendour, as remarked upon by visitors. Sir Thomas Roe noted that they kept luxurious tables, with twenty dishes, and even up to fifty, being served at a time.[146] At a dinner given in honour of Roe by Asaf Khan, the brother of Nur Jahan and father of Mumtaz Mahal, his chaplain Edward Terry sets a nice little mathematical exercise by noting that 'the ambassador had more dishes by ten, and I less by ten, than our entertainer had, but for my part I had fifty dishes ... (all) set at one time'.[41] Of the nature of the food he noted: 'They feed not freely on full dishes of mutton or beef, as we, but much on rice boiled with pieces of flesh or dressed many other ways. They have not many roast or baked meats, but stew most of their flesh.' He praised a dish of spiced venison, called *deu pariyo* (dōpiyaza) as 'the most savoury meat I ever tasted'.[41] Buffalo flesh 'was like beef, but not as wholesome ... their sheep exceed ours in great bobtails (dumbo or fat-tailed sheep), which cut off are very ponderous ... the flesh of them is altogether as good as ours.'[41]

However the visitors also commented on the lot of the poor peasantry. Thomas Roe remarked: 'The people of India live like fishes do in the sea—the great ones eat up the little. For first the farmer robs the peasant, the gentleman robs the farmer, the greater robs the lesser,

and the king robs them all.'[8Bh] His chaplain Terry noted that the poor ate rice boiled with green ginger to which they added a little pepper and butter; it was their principal dish, but even so was seldom eaten. Their 'ordinary food' was not made of wheat flour but of a coarser grain (possibly jowār) baked on small, round iron hearths (the sigris of the present) to give round, broad and thick cakes (rōtis) that were 'both wholesome and hearty'. Water was the common drink, but sometimes it was converted into sherbet with lemon juice and sugar.[41] Humbler Muslims had naan for breakfast, frequently with kheema or kabāb as an accompaniment, with plenty of onions, desserts of phirni (p. 107) and sheer-birinj (kheer of rice and milk), halwās and dried fruits.[53] The practice of chewing the betel quid was widely prevalent. Ordinary Hindus had fried pūris and bhathūras for breakfast, along with various vegetables and green leafy preparations (saag).[80A] The common Indian dish noted by most visitors was rice cooked along with pulses (khichdi, q.v.), eaten as an evening meal. Famine could strike with devastating effect. Peter Mundy, during the great famine of AD 1631, described 'poor people scraping on the dunghills for grain that perchance may have come undigested from them ... the highways strewn with dead people, our noses never free from the stink of them'.[123c]

moley, moilē A liquid curry of, say, fish with plenty of fresh coconut, called by this name in the Tamil country, in Sri Lanka, among the east Indians of Maharashtra, and by the British colonial. The word is thought to be a corruption of the term Malay, from where perhaps the dish originated.[1d]

morabba, murabba A preserve of boiled fruit (mango, āmla, citron) held in a spiced thick sugar syrup. The preparation is linked with the Unāni system of medicine, the word itself being Arabic for preserved and domesticated.[119c] By Independence, a sizeable morabba production industry had developed in Delhi, Amritsar and elsewhere to cater to domestic and export demand.[309]

mosambi *See* citrus.

moth bean *See* mat.

mōtichūr A sphere of fine globules (mōti = pearls) of fried bēsan (q.v.) held together with thickened sugar syrup. A laddu would have coarser granules. It is mentioned in the Kannada literature[67b] of a few centuries ago, and as a food item of Bihar about a century ago.[285] The sculpted or painted figure of Ganesha frequently holds in one hand what appear to be balls of mōtichūr, as in the great Lingaraja temple at Bhubaneshwar.[201]

mulberry The black mulberry, *Morus nigra*, is a native of Iran and the white mulberry, *M. alba*, of China.[7c] Both have long been grown in India for their fruit and leaves, which find use as a food for silkworms. Charaka refers to the

mulberry as tuda.[24] In Mughal times, figs were grafted on mulberry trees.[27] During his travels in India around AD 1610, William Finch observed that 'from Agra to Lahore the way is set on both sides with mulberry trees',[310] and not long after this Bernier noticed in Bengal 'small mulberry trees, two or three feet in height, for the food of silk-worms'.[8Bd]

mulligatawny Literally, pepper-water (milagu-thannīr) in Tamil; this was the rasam (q.v) of south India, which was adopted with such modifications as the addition of meat stock as a soup by the colonial. A British prisoner of Hyder Ali in AD 1784 sang mournfully:[1e']

In vain our hard fate we repine,
In vain our fortunes we rail;
On Mullighu-tawny we dine,
Or Congee, in Bangalore jail.

In fact the colonials who lived in Madras were derisively referred to as Mulls, and those in Bombay as Ducks (from the fish).

Munda A loose term used (along with Austrics) for the very early inhabitants of India. Once widely spread all over the country, the Mundas now comprise tribals who live mostly in Bihar, Orissa, West Bengal, Madhya Pradesh and Tripura, with a particularly high concentration in the Ranchi district of Bihar.[311] Vedic literature terms them nishādas (nisha = turmeric, ad = to eat); in the *Yajurveda* this term included such groups as the svānin (dog-keepers), chandāla (dog-eaters) and punjistha (fowlers), who had domesticated the dog, fowl and elephant. Numerous food words believed to be of Munda origin were absorbed into the Sanskrit language. These may be listed in groups. Fruits included the kadali (banana), panasa (jackfruit), dālimba (pomegranate), nārikēla (coconut), nimbuka and numbaka (lime) and nāgaranga (the Seville orange). Pulses with names of Munda origin include the māsha (urad), mudga (mung) and masūra (masoor); and the vegetables are vartaka and vrntaka (brinjal), alabu (pumpkin), tundli (tinda), patola (parwal), āluka (tubers) and pundarika (lotus, with edible parts). Oilseeds like tila (sesame), sarshapa (sarson) and perhaps atashi (linseed) also sound non-Sanskritic, while several spices are distinctly of Munda provenance, like srngavēra (ginger, in Tamil injivera), haridra (turmeric) and chincha (tamarind). So is the betel leaf (thāmbūla) and the areca nut (guvāka). Words for utensils like drshād (grinding stone), ulūkhala (mortar) and musāla (pestle) probably have a Munda origin, as has the term kukkuta for a chicken. Though rāgi for the cereal *Eleusine coracana* derives from the term rāga (red in Sanskrit), the grain itself has numerous tribal names.[2x'] Of course a Munda-derived Sanskrit name would imply the presence of the item in India from ancient times.

mung The Sanskrit mudga, botanically *Vigna radiata* and mung in

Hindi, is certainly of Indian origin. An old, lost plant form first gave rise to two forms of *Vigna sublobata*; one of these then evolved to the urad (black gram) and the other to mung (green gram).[32a,294c] It is mentioned in Sanskrit literature from the *Yajurveda* (*c.* 1000 BC) onwards, and is one of the 3-M trio, mudga, māsha and masūra.[6a] Early archaeological finds date from *c.* 1800 BC–1500 BC, in Navdatoli-Maheshwar (Maharashtra)[85,217] and Paiyampalli (the Dekhan plateau).[8Am,277]

Mung is used in numerous ways. Buddha recommends it in a group of foods 'full of soul qualities' and 'devoid of faults'.[25A] However, in Kashmir in the *Rājatarangini* [267] of Kalhana (*c.* AD 1200) it is rated as an inferior food. In ayurvedic terms all pulses increase vata (wind), but mung is now recognized as the least flatulent of the common pulses, which can even be given to children, and is recommended by Sushrutha for eating daily.[33] A soup of mung, generically termed yusa, features in medical literature.[24] Pulses cooked with greens, called melōgara (q.v.) in old Kannada literature, feature the mung.[67b] Mung can be puffed to a crisp bhrstadhānya;[24] this product is ground to a flour which in Rajasthan is the batter of choice for a whole range of deep-fried snacks.[285] A laddu made of puffed mung is referred to in the Gujarathi work *Varanaka Samuchaya* (AD 1520).[136] Perhaps the widest use of mung dhāl, apart from direct consumption, is in a khichdi (q.v.) with rice. This is frequently mentioned by visitors to India, like Ibn Battuta, Abdur Razzak and Tavernier, as the common evening meal of peasants in India.[1w]

murmurà, muri Puffed rice, pori in Tamil, is a plump, shining, white, crisp product obtained by tossing soaked or parboiled rice on very hot sand, when the grains expand and burst. Puffed rice can be munched as such, or dressed with a little salt, and in Bengal with pungent mustard oil. Other additions are chopped onions, chiplets of fresh coconut or copra, roasted groundnuts and even sugar crystals.

murukku Tamil term for a crisp snack, made by extruding a thick batter of rice and urad dhāl through star-shaped dies into very hot fat in the form of a flat whorl. It is termed chakkali (perhaps from its coiled form) in Kannada, and is mentioned in a work of AD 1560.[67b]

Muslims, food of *See* Islam and food; Mughal period, food of.

mustard leaves *See* sarson.

mustard oil While mustard seeds find early mention in Sanskrit literature, only in later Vedic literature is there a contemptuous reference to the extraction of oil from these seeds by the aboriginal inhabitants, termed nishādas (*see* Munda).[312] The Buddhist canonical literature mentions the oil,[6c] while the *Arthashāstra* of *c.* 300 BC lists mustard among the major oilseeds crushed.[16] The *Charaka Samhitā*

describes the class of food preparations with mustard oil as a hot commodity.[24] Both Xuan Zang and I Ching in the seventh century AD make many references to the use of mustard oil in cooking;[316] perhaps this was common around the Nalanda monastery in Bihar, where they resided. The use of mustard oil to dress puffed rice in Bengal is also mentioned by Xuan Zang. In a commentary on the *Charaka Samhitā* written in AD 1060 by Chakrapani Datta, the many virtues of mustard oil are expounded;[316] appropriately, this work emanates from Bengal, where mustard oil has always had pride of place in cooking and pickling. In the *Chandī-mangala,* written in the sixteenth century by Mukundram Chakravarti, the tamasic nature of Lord Shiva is reflected in the fact that his food is cooked not in ghee, which is a luminous sattvika product, but in pungent mustard oil.[89] The *Khanar Vachana*, a very early Bengali work of the eleventh century, recommends foods appropriate to various seasons, and includes free use of mustard oil in Magh, a cold month.[318]

Another outlet for the oil is as a body massage prior to taking a bath, the so-called oil bath, which the *Sushrutha Samhitā* recommends for both adults and infants. The oil is absorbed and reaches every organ of the body, particularly benefiting the skin, hair and eyes, and the muscles and joints.

mustard seeds Carbonized seeds of rāi, *Brassica juncea* subsp. *juncea*, have been discovered at the Indus Valley site of Chanhudaro dated about 1500 BC.[32a] Even today this seed, called mustard in India, is the major Indian brassica species. Next in terms of output is brown sarson, which is *B. napus* var. glauca, followed by reddish-brown toria, *B. napus* var. napus. There is also a minor crop of yellow sarson.[312] All these are oil-bearing seeds; however, they are never crushed singly for oil, but always in a judicious admixture so as to yield a 'mustard' oil of distinctive taste and flavour in high yield, to which each seed type contributes something distinctive. In countries abroad it is sarson and toria types, there called rapeseed, which is processed for oil, yielding in turn rapeseed oil.

Sanskrit literature used in this context the term sarshapa, believed to be of even earlier aboriginal origin (*see* Munda). Two kinds of seeds are mentioned. Rājika is certainly the rāi of today, a reddish seed, and siddhārtha (also called svēta-sarshapa and gaura-sarshapa) is probably yellow sarson. In Indian rituals, mustard seeds have a connotation of disinfection. In the *Āpasthamba Dharma Sūtra* it is enjoined that at ancestral ceremonies the practitioner rub the powder of white mustard seed on his hands, feet, ears, and mouth.[313] Red mustard seed is sprinkled on a fire to subdue evil spirits,[314] and in the *Matsya Purāna* it is stated that before

undertaking certain vows, a man should have a bath with panchagavya (q.v.) and mustard paste.[315] A paste from white mustard seeds was used to wash linen garments; the seeds were also scattered in a birth-chamber, and put into the mother's bathwater during the tenth-day ablution.[316] In the *Atharvaveda*, the word abhaya, meaning fear-inspiring, is used for mustard seeds.[6a]

Rāi itself is of two kinds. In India the oilseed-spice form is important, whereas in China it is the vegetable leafy form.[312] The leaves eaten in India as a spicy relish are the sarson variety. All these brassicas are the result of accidental crossings in the remote past of two simpler species. One of them still exists; this is *Brassica nigra*, the black mustard, Banarsi rāi, or kadugu, which finds use only as a condiment. It may be used in one of two ways. Commonly, all over India, the initial baghār operation begins with the frying of mustard seeds in hot oil till they cease to splutter, followed by the frying in the same oil of chopped onions and perhaps other spices; after this comes the frying of meat, fish or vegetables; the mustard pungency is here mostly lost. The baghār can also be used to top a finished dish, of say, cooked dhāl or even curds. The second way of using mustard seeds is to crush them into a paste in which meat, fish or vegetables are marinated before being cooked into distinctly spicy dishes. The *Naishada Charita* (*c.* AD 1000) describes a bowl of curd spiced so pungently with mustard that the diners were obliged to scratch their heads![6k]

In ayurvedic terms mustard seeds have a decidedly 'hot' connotation. External poultices are used for abscesses, itch and rheumatism. Taken internally, mustard seeds aggravate pitta conditions, but are helpful in vata and kapha disorders[34] (*see* ayurveda, dōshas).

There is historic interest in the fact that a long-standing Indian system of weights, recorded in the *Mānava Dharmashāstra*, starts with one peppercorn (likya); this equals one black mustard seed, and three of the latter are equal to one white mustard seed[16,317] (*see* weights, measures and lengths).

mutton Mutton in India connotes both goat and sheep meat, which in about equal amounts is the commonest form of meat eaten in the country. Stray references to mutton occur throughout literature, though not with the frequency expected from its present widespread use. Mutton was served at a sacrificial feast of King Dasharatha described in the *Rāmāyana*.[187] The *Mānasollāsa* of King Someshwara in the twelfth century mentions kavachandi, a spicy dish of fried pieces of mutton in the shape of plums, cooked with pulses, garlic and onion, with vegetables like the brinjal and radish also included sometimes.[49] Xuan Zang notes that mutton in India was mostly eaten fresh, and sometimes salted.[19a] When he visited the Khan

of the Turks in Su-Yeh, the monarch consumed wine, mutton and veal (young beef), but ensured that his distinguished guest was given 'pure articles of food such as rice cakes, cream, sugarcandy, honeysticks (?), raisins, etc.'[319] Amir Khusrau in the thirteenth century notes mutton among the food of the Muslim aristocracy,[53] and in Mughal India, Edward Terry remarks that the flesh of the 'sheep with great bob-tails', as he puts it, was 'altogether as good as ours'.[82] A mutton-pie was one of the numerous items served at a colonial lunch in Calcutta by Mrs Elizabeth Fay in AD 1780.[131]

Current Kashmiri cuisine boasts of a whole array of mutton dishes, especially lamb. Yakhni is mutton cooked in curds (*see* Mughal food), and aab-gosht in milk. Rōghan-jōsh, literally red meat, is coloured with dried cockscomb, marzwangan is a mince and gōli and rishta are meat balls. A meat loaf, ground fine and silky in texture, constitutes gosh-tāba. Exactly seven dishes, all of lamb, are prepared by specialist cooks for a mishāni dinner.[268] There are references to eracchi in old south Indian literature in Tamil which most often means mutton (*see* meat dishes).

Mysore pāk A sweet crumbly confection of roasted bēsan (q.v.) cooked in a moderately thick sugar syrup, and finished with ghee. It is popular in the former state of Mysore, from which the name may derive. It does not seem to figure in the historic literature of Karnataka.

N

naan A rōti of fine white maida (q.v.), leavened, rolled out oval in shape, sprinkled with nigella (kalonji) (q.v.) seeds, and baked in a tandoor (q.v.) or ordinary oven. Small, mud-plastered ovens 'closely resembling present-day tandoors' have been excavated at Kalibangan, an Indus Valley site.[60c:249a] In about AD 1300, Amir Khusrau notes naan-e-tanuk (light bread) and naan-e-tanūri (cooked in a tandoor oven) at the imperial court in Delhi.[53] Naan was in Mughal times a popular breakfast food, accompanied by kheema or kabāb, of the humbler Muslims.[53] It is today associated with Punjabis, and is a common restaurant item, rather than a home-made one, all over India.

Nalapāka *See* maharājā.

navy bean *See* rājmah.

neem Every part of the neem tree has a utility value, but in medicine and for health rather than in food. The bitter leaves are edible, and on Ugadhi or New Year's Day in Karnataka and Andhra Pradesh, a few neem leaves are chewed with jaggery, as a symbol of acceptance of the bad with the good during the year. In Bengal, the leaves could be a component of the bitter shukto dish. In fact in a sixteenth-century Bengali work, the *Chandīmangala*, a dish of brinjals cooked in neem leaves is offered to Lord Shiva, who is of a tāmasic (q.v.) temperament.[89]

The ends of neem twigs are chewed to create a toothbrush, with which the teeth and gums are cleaned.

neera Incisions made on the spathes of the palmyra palm, date palm, coconut palm and sago palm all yield an intensely sweet juice called neera, collected (usually early in the morning) in earthen pots tied in place below the cut. If the pots are coated with slaked lime, fermentation is delayed, and the neera is then boiled down to palm jaggery (q.v.), or is drunk as a beverage; if not used in these ways, the juice rapidly ferments to toddy (q.v.). The *Puranānūru* written in the sixth century AD in Tamil mentions munnīr, a favourite drink with women, which was made of equal parts of neera, coconut water and sugarcane juice.[61.102]

nigella seeds In Hindi these tiny black seeds are called kalonji or kāla-jeera, and in English black cumin or small fennel; botanically they are termed *Nigella sativa*. Nigella seeds are used as a condiment in cooking, and are sprinkled on naan before it is baked.

niger Botanically *Guizotia abyssinica*, niger seeds resemble those of sesame (tila in Sanskrit); indeed in many Indian languages the names for niger seeds are akin to names for the sesame: in Sanskrit rāmtila and kālatila; in Telugu (in which sesame is ellu) garellu; and in Kannada hucchellu. The seeds are usually crushed to obtain an edible oil.

nigger fowl *See* chicken.

nutcrackers *See* arecanut.

nutmeg *See* mace.

nutrition The act or process of nourishing, as nutrition is defined, is well recognized in such historic Sanskrit terms as ahāratattva, pōshana, purshi and palan. In fact a major part of ayurvedic medicine is based on setting right an imbalance of body dōshas (q.v.) through corrective foods (*see* ayurveda). Variety in food, a cardinal concept of nutrition, was ensured by an insistence that every meal contain all the six tastes or rasas. The foods named for everyday eating by Sushrutha, and the quantities of major ingredients noted in the *Arthashāstra* (*see* balanced diets), reflect sound nutritional principles. Ayurveda went even further in insisting that such diets should take into account the temperament (prākruthi) and digestive power (agni) of each individual.

nuts Among the older nuts of India are the almond (Sanskrit vātāma), pistachio (pishtha) and walnut (akshota). Much later arrivals from South America are the groundnut and cashewnut (*see* individual entries for details).

Two other nuts of antiquity are the chironji (*Buchanania lanzan*) and chilgōza (*Pinus gerardiana*). Chironji kernels were noted by Babar as 'a thing between the walnut and the almond, not bad! (They are) rather smaller than the pistachio and round ... people put (them) in custards and sweetmeats'.[8Bm] The

chilgōza (abhisūka in Sanskrit) is the nut of the neosia pine, an evergreen tree of the dry interior and arid north-eastern Himalayas that grows at heights of 2000–3000 metres.[2q'] The ripe cones are picked in October before they open; when heated the scales expand, and the nuts can be removed.[2q']

O

oats Originally native to the Mediterranean countries, oats have been found in layers dated in the millennium after 4000 BC in Mehrgarh, beyond the northwest frontiers of India, but never within its boundaries. Oats, jai in Sanskrit, are now grown mainly as food for horses in the western Himalayas.[2r',99m]

oils, oilseeds Oilseeds like the sesame, mustard and linseed were known in the Indus Valley, and the Sanskrit names are believed to be of Munda origin (*see* Munda). The coconut has always been familiar to south Indians. Knowledge of these oilseeds almost certainly implies a knowledge of their oil, which is released merely by boiling the mashed seed. By about 500 BC crushing devices had developed (*see* ghani; milling) for commercial, as opposed to domestic, operations. The following individual entries may be consulted for details of both oilseeds and oils: coconut, linseed, mahua, mustard, neem, niger, safflower and sesame.

Reference may be made to the entry, fats in cooking (p. 66), for various facets of the edible uses of oils; the term fat is a generic one used in nutrition to denote both solid and liquid products, though in common speech it connotes a solid material.

oil pressing *See* ghani.

olive *Olea europacea* is essentially a Mediterranean tree. The fruit has worldwide usage, and is also the source of an edible oil of distinctive flavour, particularly employed as a salad oil. The Indian olive is *O. ferruginea*, with an edible fruit, kau, found in the Himalayas.[99n] It is grown in India to a very limited extent for use as a vegetable, especially in Bengal. Neither species is particularly important in India.

onion *Allium cepa*, the onion, belongs to the same family as the garlic (*A. sativum*), and both are believed to be native to the Afghanistan region.[7p] It is a very ancient plant, being described in the funerary offerings of Egypt dated 2800 BC, and actually found in mummy stuffings.[7p] Even by the fifth century BC, many forms of the onion, long, round, white, yellow and red, had been described by Greek writers.[320] Neither the four *Vedas* nor the sixteen *Upanishads* mention the onion, and when the palandu does appear in Aryan writings, it is as a food of the despised native population, the mlecchas, and of foreigners (yavanas), to be shunned by those seeking an austere life, as well as on ceremonial

occasions. Both the onion and garlic were believed to stimulate the baser instincts, and always headed the lists of foods forbidden to students, widows, those under a vow, followers of Vishnu and the like. The Buddhist travellers in India, Fa Xian and Xuan Zang, note these views. Fa Xian wrote (*c.* AD 400): 'Throughout the country no one kills any living thing, nor drinks wine, nor eats onion or garlic.'[106a] And Xuan Zang, two and a half centuries later, noted: 'Onions and garlic are little known, and few people eat them; if anyone uses them for food, they are expelled beyond the walls of the town.'[8Aj] These statements reflect the Buddhist and brahmin viewpoint.

Among other sections of society the onion was in general use. Charaka classes it among the harid or underground materials,[24] and its physiological effect was that of a pungent but noticeably 'sweet' material, which was stimulating, diuretic and expectorant.[34] Both Hindu and Muslim royalty consumed onions extensively. The *Mānasollāsa* (twelfth century AD) written by King Someshwara[49] describes numerous meat dishes in which onions were fried in the initial baghār (q.v). Ibn Battuta describes samōsas stuffed with (fried) onions served in the Sultanate court in the thirteenth century AD.[53] Almost all the numerous recipes used in Akbar's kitchen, described in the *Ain-i-Akbari*, employ onions; thus yakhni has, for 10 seers of meat, one seer of onions and half a seer of salt, and dupiyāza has 10 seers of meat and 2 seers of onions, besides ghee and spices[28] (*see* meat dishes; Mughals, food of). This latter dish, served at the court of Jahangir, and replete with onions (piyāz), was extolled by Edward Terry as 'the most savoury meat I ever tasted'.[82] In Kashmir today, Muslims and Hindus use distinctive spices in cooking, and a special kind of onion called praan is used only by the former. Even in Mughal times, visitors noted that while humbler Hindu peasants ate a khichdi of rice and pulses, humbler Muslims would do with rice and raw onions.[52] The missi-rōti has finely chopped spinach, fenugreek and onions mixed into the wheat dough.[231] The initial frying of mustard seeds followed by chopped onions is an extremely common practice all over India (*see* baghār) in the preparation of both meat and vegetable dishes.

opium *See* poppy.

orange The origin of various orange varieties is noted under citrus fruits.

Two types of the orange group are common in India. One is the nārangi (first mentioned as nāgaranga by Charaka, and also called airāvata in Sanskrit) which is *Citrus aurantium*, and the other is the mosambi or sweet orange, which is *C.sinensis*. A third common citrus, which belongs to the mandarin/tangerine group, is the loose-jacketed santhra, *C.reticulata*, which

is of Chinese origin. Babar carefully describes these common types and several lesser kinds, but most visitors either use the loose term orange, or describe them as sweet or sour oranges; these include Xuan Zang,[8AJ] Varthema,[29a] Domingo Paes[21b] and Pelsaert.[8BI] In about AD 1680 Tavernier records that he received from the Nawab at Dhaka a gift of 'Chinese oranges', perhaps the loose-jacketed santhra variety.[32J]

oregano Brought to India from Mexico, and called sathra and miranjosh in Hindi, the dried green leaves of this herb are used to flavour Mexican foods like chilli con carne, taco and tamale. Its flavour resembles that of marjoram, sage and thyme, all of which again are exotic to India.

ovens *See* cooking utensils.

oxen *See* cattle.

P

paan Hindi term for the betel quid (*see* areca nut).

pāk From the Sanskrit term pāk, meaning cooked, come the names of several sweet cooked confections, like shakarapāka (made by boiling down milk), Mysore pāk (q.v.), and mēthipāk and gunderpāk (medicated Gujarathi confections).

pāk, pākku Term used for the betel quid in the Tamil/Kerala area, as noted even in AD 1560 by Garcia da Orta[45] (*see* areca nut).

pakoda, pakauri Irregular lumps of bēsan batter (with, say, cashewnuts), or slices of brinjal, potato, tomato, onions and the like dipped in a bēsan batter, deep-fried to semi-crispness. A mēthi-spiced product in Bihar is termed methauri.[28S]

pālak Hindi term for the spinach, *Spinacia oleracea*, from the Sanskrit pālankya, first mentioned in the *Sūtra* literature (800–300 BC).[6h] It is native to southwest Asia,[7a] and had a long history of edible use in India before it was known in the West. It is cooked with dhāls to a liquid curry, or to a pasty mash with paneer or potatoes. The Parsi akuri is a baked dish of greens, frequently spinach, topped with fried or full-boiled eggs.

palão A dish of rice cooked with spiced meat and ghee. The word is ascribed to the Persian and Arabic pilāv, pulão and pallão, yet it would appear to have found its way long ago into both Sanskrit (in the *Yāgnavalkya Smriti*,[299] as pallāomevach) and early Tamil literature[69b] of the third to the sixth centuries AD. Biriyāni (q.v.) is quite similar to palão, the word being derived from the Persian term birinj for rice.

The *Ain-i-Akbari*[28] specifies, for a palão of minced meat (kheema), 10 seers (each about a kg) each of rice and meat, 4 seers of ghee, 1 seer of dehusked gram, and 2 seers of onions, besides fresh ginger, pepper, cumin seed, cardamom and cloves. More commonly pieces of goat, sheep and chicken would be used. A chicken palão was noted at

the Sultanate court in Delhi in the thirteenth century.[53] The multi-coloured navratan palão with saffron, sultanas, paneer and nuts, was designed to honour the nine intellectual gems of Akbar's court. Bohri Muslims use split peas with meat, and Kashmiris and Parsis eat a sweet, zarda (saffron)-flavoured palão with raisins and nuts. Tejpat leaves are frequently added for flavouring, besides raisins and almonds for taste. While the biriyāni of Hyderabad is irregularly stained, and the meat is cooked extremely soft, in the palão of Kodagu the meat is firm and springy, and every grain of rice is fully coated with ghee and brown masāla. The Dogras of Kashmir have a distinctive srī-palão, besides a mutton palão.[270] There are innumerable other local variations in the preparation of palão. Even a dish of rice cooked with vegetables and spices is loosely called a vegetable palão.

palms A large genus of tropical plants, the Palmae, have three species of importance in India: the coconut, the palmyra and the date, which are individually listed in this volume. Of lesser importance is *Caryota urens*, the caryota palm; this yields a sweet sap used to make jaggery or toddy, while sago from the starchy interior of the stem was a source of food for the poorer classes along the Malabar coast a century ago.[2s'] The talipot palm, *Corypha umbraculifera*, has enormous fan-shaped leaves as much as 3 metres across, and hard, ivory-coloured fruit/seeds used to make beads, buttons and even small bowls; a sago is derived from the pith.[2t']

palmyra Known as thālpatra in Sanskrit, *Borassus flabellifer* or the toddy palm has a crown of fan-like leaves. In the purple, woody nuts are embedded three translucent pulpy fruits of doughnut shape, filled with a sweetish juice that soon turns alcoholic. It is beautifully depicted in Buddhist sculpture.[8A1] From the inflorescences an intensely sweet sap is tapped into clay pots. These pots are smeared with slaked lime if fermentation is to be retarded either for use as a beverage or for boiling down to jaggery (q.v.). Fermentation yields a toddy with a strong aroma, and distillation a potent arrack.

A popular drink with ladies and described in the *Puranānūru*, a work of Sangam Tamil literature, is munnīr, made of equal parts of sugarcane juice, tender coconut water and fresh palmyra sap.[61,102] In Kerala, the fresh sap on thickening after being boiled down yields the syrupy pāni; this is mixed with rice grits and filled into a translucent tube of rice to give the confection, churuttu (literally cigar).

A Tamil proverb ascribes to the palm '801 uses which meet almost all the wants of man'.[2u'] The name palmyra derives from the Portuguese palmeira, meaning the palm *par excellence*.[2u']

panchagavya *See* beverages.

panchamritha A sweet, ceremonial,

five-component confection. In medical literature, this comprised three sweet fruit juices along with honey and water.[24] The panch-amritha offered as prasādam in the Murugan temple in the Palani hills of Tamil Nadu consists of crystal sugar, honey, ghee, cardamom and fruits (banana, dates, raisins); it does not go rancid even for six weeks.[196]

pānchaphorōn A mixture of five condiments in equal quantities employed in Bengali cooking (q.v.).

paneer *See* milk.

panicum grains Till recently, several small grains were included in the *Panicum* family, but some of these are now included in the families *Echinochloa* and *Setaria* (*see* millet). Even in the *Samhitās* of the *Yajurveda*, these grains were collectively called shyāmaka, with such prefixes as ambah-(or toya-), rajāh- and hasti-.[6j] They were regarded, e.g. by Apasthamba,[6a] as uncultivated foodgrains that were permitted to hermits.

The two major panicums are *P. sumatrense* (synonym *P. miliare*), otherwise the little millet, shavan, gondli and samai, and *P. miliaceum* or the Proso millet, akusthaka, cheena and panivaragu. Samai is still an important crop in the eastern ghats of south India, the husked grain being cooked like rice or ground to a flour. Proso millet is a very old grain, cultivated even by the prehistoric Lake Dwellers of Switzerland, and domesticated perhaps in the eastern Mediterranean or even in India.[7c] Panivaragu has been excavated *c.* 1000 BC in Adichanallur, and was an important foodgrain in the Tamil country during the Sangam period. It is a crop of very short duration, as well as hardy, and hence was frequently cultivated before and after the main kharif and rabi crops. It is widely grown in Bihar, and used like rice, or after parching as a gruel, or in the form of a chikki.[322]

pāo A sort of bun baked in four sections (hence the name, meaning a quarter) that can be broken apart. It is often sold on city streets for on-the-spot consumption with cooked vegetables, meat or chicken. It is believed to be of Portuguese origin (*see* rōti).

pāpad Pulse flour doughs rolled out very thin into circles and deep-fried or roasted to crispness, used as an accompaniment to meals. The pārpata is first mentioned in about 500 BC in Buddhist-Jain canonical literature,[6c] and the medical authorities note that they are made from pulses like urad, masoor, chana and the like. Professional pāpad-makers called kāgal-kūtas soon developed, and are mentioned in the fourteenth century as part of a king's army in Rajasthan.[323] This state has both thin and thick pāpads, called kheladas.[323] The Tamil term is appalam or pappadam. The Kannada word happala occurs in the *Siddarāmacharitē* written by Raghavanka[67b] in about AD 1200, and again in the *Sanatkumāracharitē* written by Tereka-

nambi Bommarasa (AD 1485), in which happalas are described as 'being broken into pieces' at a feast for kings.[67b]

papaya A fruit-bearing tree that seems to have come to India from South America by way of the Spanish East Indies (Philippines) and Malacca,[1h] or, according to Delle Valle, from Brazil.[357] In AD 1550 a European visitor to Peru mentions papaie in use there, while in the Caribbean it is called ababai. Writing of it in India in AD 1598, Linschoten uses the word papaios, while pawpaw and papeeta are employed by several English writers in succeeding centuries.[1h,357] Papayas in India grow on female plants, and, in plantations, about 15 per cent of male plants suffice to effect pollination and fruit setting.[7c]

pāpdi Crisp, deep-fried wafers of bēsan that incorporate jeera and mēthi, popular in Gujarat and Rajasthan. The item termed purika mentioned in the *Mānasollāsa* in the twelfth century AD[49] answers to the description, not of the pūri of today, but of the pāpdi.

paramānna A ritual confection of rice and milk with honey and sugar given to a child as its first solid food at the annaprasanna ceremony (q.v.). Though older, the term occurs as a food item in a work in Kannada written in AD 1485,[67b] and is repeatedly extolled as the finest type of pāyasa (q.v) in subsequent writings.[67b]

parāta, parānta Wheat dough rolled out, with frequent folding over while smearing with fat, to a square or triangular shape, and pan-fried using a little fat to a layery texture. Cauliflowers, potatoes, spinach and mēthi leaves can be mixed into the dough before frying, and the product eaten with curd. A stuffing of bēsan flour yields the birahi, with an unusual taste and texture. The sweet pōli, hōligē and obattu of Maharashtra and Karnataka are stuffed with boiled and mashed pulses and jaggery, while a stuffing of finely powdered sugar, coconut shreds, dates, raisins and the like yields various forms of mandē and pōli (q.v.). Many of these are of considerable antiquity, both the purigē (later termed hōligē) and the mandagē being mentioned in a Kannada work of AD 920, the *Vaddarādanē* of Shivakotyacharya.[67b]

parboiling Parboiled rice is termed pulungalarisi in Tamil, and the term first occurs in the *Siruppānarupudai* of the late Sangam period.[26] Paddy was soaked in cold water for a few days, then boiled till the grain softened, after which the grain was dried in the sun. Subsequent milling in a pounder, or on a chakki between stones, yielded parboiled rice with a distinctly better yield of unbroken grains than when paddy itself is milled. Modern studies reveal that during the operation many surface nutrients are driven into the grain; these are not lost by leaching when the rice is subsequently cooked, making for distinctly better nutrition.

Improved parboiling processes recently devised call for quick steaming of the grain, followed by cold steeping for a few hours and a second quick steaming, a process which saves time and improves the sensory quality of the product.

parching Soaking grain in water, roasting it in hot sand so that the grain swells but does not burst, and finally pounding it in a mortar yields a parched and flattened product. Even the *Rigveda* (1500 BC) mentions lājāh or parched barley, which was reduced to a coarse flour called saktu (the modern sattu) and eaten with ghee, milk, curds and even soma juice.[6a] Parched rice is later referred to as chipita, a name that survives in the crisp fried snack, chivda or chidva.[150] Other Sanskrit terms for parched grains are ūlumbāh and prthuka, while Charaka refers to parched grains as a class as bhrshtadhānya.[24] Distinct names were current in Bihar a century ago for parched products from various grains: lāi from rice, chiuri from barley, lawa from maize, and pavaral also from maize (this was also a general term).[285] Old Tamil literature describes parched rice by the term even now in use, aval.

In ritual terms, parched grains made by professionals can be bought and used even by an orthodox brahmin without the stigma of pollution.[23] Indeed parched rice or chura is an auspicious food, and in the wedding ceremony of the highly orthodox Kanyakubja brahmin community of Uttar Pradesh, where Vedic ritual is still maintained, the bride will throw it with both hands into the fire during the marriage ceremony.[22] In Indian medical understanding, parched grains are considered to be more easily digested than the ordinary products, and are recommended for use by diabetics in place of cooked or fried grains.[24] Visitors to India in Mughal times note that the morning nourishment of peasants was a handful of parched grain dressed with a little pungent mustard oil.[80A] A crisp-fried chura seasoned with salt, turmeric, groundnuts and copra shreds constitutes the popular snack chidva. In south India an uppuma (q.v.) of aval is eaten for breakfast, and a milk-based pāyasam (q.v.) as a dessert.

Parsis, food of Islam was established in Iran after the fall of the Sassanian empire; sacred Zoroastrian fire temples were destroyed, and religious persecution drove its followers first into the mountains and then to the port town of Hormuz.[350] Around AD 850, a group seeking a new home set out in seven junks; they arrived first at the island of Diu, off Gujarat, and then entered the mainland.[351] After a couple of decades, the small migrant community led by Dastur Nariosanj again set sail, and after a violent thunderstorm landed in Sanjan port in the Thana kingdom of Jādi Rāna (Vajjadeva). He welcomed them and allowed the first fire temple in India to be set up.[350] Once again persecution by the

invader Sultan Mahmud Bagda drove the Parsis with their sacred fire into the mountains. Later they were able to settle in Navsari and Udweda, and to thrive as a mercantile community with strong religious and social ethics based on 'good thought, good word and good deed'. Today Parsis are to be found all over India, but total only 100,000.

In about AD 1325, an early European visitor to India, Odoric of Pardone,[29c] was in Surat, and described the fire worship of the community of Parsis. Father Monserrate,[106d] who was in India in *c.* 1600 AD, remarked that the 'diet of the Parsis consists of milk, ghee, oil, vegetables, pulses and fruit, they drink no wine', which is rather inaccurate. In fact there are few food restrictions on the Parsis, but some Hindu customs have been adopted voluntarily, such as the prohibition on beef. The cuisine reflects both an Iranian ancestry in its strong non-vegetarian component and local Gujarathi influence.[352] The Iranian influence also shows in the free use of nuts, raisins and sultanas. Parsis relish the distinctive sweet fried noodle dish called sēviyan (q.v.), the rich drink falooda (q.v.) made from sago granules, the mutton-barbecued shoojan, and a disinctive zard or sweet palão (q.v.). At least three dhāls, and even up to nine, are cooked together with subtle spicing to give dhansākh, but into it also goes pieces of fatty meat, tripe and vegetables.[268] From the local undhiu, a mixed dish of soft vegetables (beans, sweet potato, brinjal, red pumpkin) baked underground in a handa, has evolved the Parsi oberu or umberio, to which quail meat is sometimes added. Chutneys, morabbas and snacks have been freely borrowed and adapted. The coconut with a dab of vermilion is an auspicious symbol among both Gujarathis and Parsis, and its soft pulp is extensively used in cooking. Fish, freely available in Gujarat, is baked with a thick coconut paste in a banana leaf packet to give the delicious patrā-ni-machi. Patia is pomfret in a dark vinegar sauce, and there are several dry fish preparations besides. Eggs are a great favourite; they are baked on a green layer of pot herbs, with added ingredients like potatoes, tomatoes, almonds, raisins, cream and butter, to yield the dish akuri with various names like ākeedar, tharkāri and bhāruchi.[352] The sources may be diverse, but the unifying Parsi touch is distinctive.

partridge A common bird of the Indian scrubland, which constitutes a table delicacy. It is mentioned in the Buddhist *Jātaka* tales,[6c] and Charaka rates the thitther or chakora highly as meat.[81] In about AD 1520, Domingo Paes notes that three kinds of partridge were available in the Vijayanagar market.[21a] The British colonial considered the Indian partridge good eating.[336]

parwal Botanically termed *Trichosanthes dioica*, the Sanskrit name

patola of this tender spherical gourd is believed to be of even earlier Munda origin, which makes it an ancient food item. The medical authorities prescribe its juice during a fever.[24] It has always been regarded as a delicious and delicate vegetable, served, for example, to the mystic Chaitanya by his admirer Sarvabhauma.[73] Again in the sixteenth-century Bengali work, *Chandī-mangala*, Lord Vishnu who demands only pure sattvik food is given 'tender potola browned in ghee'.[89] Parwal is a favourite food all along the Gangetic basin, dusted with turmeric and pepper, and lightly cooked in its own juice.

passion fruit *Passiflora edulis* is a climbing vine with purple fruit, native to southern Brazil,[7a] while the yellow fruit is *P.laurifolia*.[99o] The common name derives from the beautiful purple flower, in which the early missionaries in South America saw a representation of the agony of Christ on the Cross. The ten petals were seen as representing the apostles who witnessed the crucifixion, the ring of filaments was the crown of thorns, the five stamens the wounds, the three stigmas the nails in the Cross, the tendrils the lashes of the persecutors of Jesus, and the spots on the underside the thirty pieces of silver.[325] The loose jelly-like pulp makes a beverage with a distinct and pleasant flavour. It is not known when the vine was brought to India, but it now runs wild in the Western Ghats of south India.[282]

pāyasa(m), pāyesh A sweetened dish of rice cooked in milk, the pāyasa first finds mention in Buddhist-Jain canonical literature in *c.* 400 BC.[6c] Since common ingredients are used, the dish could well be very much older. It seems unchanged to this day, being called pāyasam in south India and pāyesh in Bengal. A sarvaligeya-pāyasam made with vermicelli figures in a work in Kannada written in AD 1222,[67b] and a 'bead-like' pāyasam (perhaps made from sago granules) in a work of AD 1235.[67b] A dish of clotted cream flakes in sugar and milk is mentioned as kenē (cream)-pāyasa in the *Mānasollāsa*, written in the twelfth century AD.[49] Similar to pāyasa is the kheer (q.v.) of north India and the prathamān (q.v.) of Kerala, while the ritual paramānna (q.v.) represents an extension.

peach *Prunus persica* developed from the same ancestral materials as the cherry, plum, apricot and almond; the diversions occurred somewhere in western China, where the peach was developed.[7d] Xuan Zang pointed out the Chinese origin of the peach during his travels in India in the early seventh century AD,[8Aj] and stated that it was then being brought into India from Kashmir. The Sanskrit name chināni reflects this origin. The Mughals made efforts to grow this semi-tropical fruit in the country, and by the time of Akbar, according to the *Ain-i-Akbari*, 'peaches ... are to be found everywhere',[28] while its

grafting on plum trees was also being explored.[27] It is a hill plant, now cultivated not only in Kashmir, but in Himachal Pradesh and the Kumaon hills.

peacock The spectacular plumage of the Indian mayūra naturally excited the attention of foreign writers. Megasthenes (*c.* 300 BC),[19a] Aelian (*c.* AD 80–140),[40d] and Varthema (*c.* AD 1508) all remarked on tame peacocks kept in royal palaces and gardens.[19a] Al-Biruni noted that the peacock was a bird that was allowed to be killed[80] and indeed the Indian medical authorities, Charaka and Sushrutha, endorsed its meat highly.[24,33] The term peafowl is used for both the cock and hen, and finds frequent mention in early Tamil literature.[205a] Roast peacock was sometimes served at a Christmas meal in India.

pear *Pyrus pyrifolia*, var. culta, the hard country or sand pear, has two Sanskrit names, urumana and nāshpati, and a Tamil one, berikāi, and must have entered the country long ago from China or Japan.[31k] The soft, sweet European pear, *Pyrus communis*, was not well known, and Xuan Zang mentions that the fruit was brought into the country from Kashmir.[100a] Under the Mughals, pears were imported during the time of Akbar from Kashmir and Samarkand[28] but were stated to be 'grown also in Hindusthan'.[28] Jahangir states in his memoirs that pears 'so far imported, are now being grown in Kashmir [which formed part of the Mughal empire] through the efforts of our nobleman Muhammad Quli Afsar'.[41] Juicy pears are still a product of the hilly northern terrain.

pearl millet *See* bājra.

peas The common cultivated garden pea, kalāya and vatāna in Sanskrit, mattar in Hindi and pattāni in Tamil, is *Pisum sativum*. It is an exceedingly ancient food material, and was domesticated in the area of the Fertile Crescent as early as in 7000 BC.[26b] A second centre of domestication of the pea (along with the pepper, areca nut, cucumber, bottle-gourd and almond) came to light recently, by way of 10,000 BC layers in the Mekong Valley in Thailand.[42] Carbonized peas have been found at very early dates in Hacilar (Turkey) and Jericho (Israel).[179] One ancestor suggested for the garden pea is *P. aravense*, the small, marbled field pea; this form is still in use in India, and has been found in Harappa, Kalibangan and Daimabad in 2000–1500 BC sites,[85] and later (1500–750 BC) in Inamgaon, Navdatoli and Jorwe in western-central India.[76]

The pea is mentioned considerably later in literature,[6c] in about 400 BC, but frequently thereafter. Three varieties are mentioned, satīna, khandika and harenu.[6j] Peas are a market item noted in the *Mathuraikkānchi* of early Tamil literature.[72] It is a crop harvested in spring, according to the *Arthashāstra*,[16] and in medical terms is a cold, dry, sweet food.[325] Green peas are cooked as a vegetable, or along

with rice, or made into a soup or used as a parāta filling.

pepper, long Pippali or long pepper, *Piper longum*, is probably native to India, and was an export item from south India to Syria as early as in 1400 BC.[6k] It is mentioned in the *Atharvaveda* (*c.* 1000 BC) and, slightly later, in the *Shatapatha Brāhmanā* as usana.[6k] Charaka notes that minced meat to be used for stuffing could be spiced with both long and round peppers.[24]

Today long pepper is a minor commodity, obtained from creeping shrubs that grow untended in Kerala and Assam. The name comes from the long fruit pods, which, by an odd coincidence, resemble in outline the thin, curved green chillies that came to India from Mexico in the sixteenth century AD. A woodcut of the long pepper shrub published in Basel in AD 1543 brings this out strikingly.[111g,327] An equal mixture of long pepper, round pepper and ginger, called trikatu,[34] is prescribed in Indian medicine for kapha and vata disorders (*see* pepper, round).

pepper, round The dried berries of a climbing vine, *Piper nigrum*, constitute round or black pepper, termed maricha in Sanskrit and milagu in Tamil. Wild pepper vines, which occur in Kerala, bear both male and female flowers, whereas the cultivated forms bear a one-sex inflorescence.[7v]

Round pepper is referred to in the Sanskrit works, *Āpasthamba Dharmasūtra* and *Arthashāstra*, and is also mentioned in the Pali work *Mahāvagga*.[6k] The *Periplus Maris Erythyraei*, written in about AD 50 by an anonymous Greek sailor, notes the export of pepper from the port of Muziris in south India to middle-eastern sea ports,[222] and about the same time Pliny in Greece mentions both black and white pepper (obtained by deskinning), perhaps drawing his information from the lost writings of Megasthenes.[18d] Tamil literature of the same period—the early Christian era—is replete with references to pepper, a product of the then Chera country (now Kerala). The marketplace, in the *Mathuraikkānchi*,[72] has 'sacks of pepper', while 'the brokers move to and fro with steelyards and measures in their hands weighing and measuring the pepper and grains purchased by the people'.

One word used for both pepper and pepper-dressed meat in Tamil is kari (anglicized in colonial times to curry, q.v.). To obtain thālitta-kari, or kuy, meat was marinated in ground pepper and mustard seeds, and then fried in oil.[69] Meat boiled with flavourants like pepper and tamarind was termed pulingari or kava,[69] which in turn could be ground to yield a pasty relish.[101] The spiced Kanchipuram idli contains whole peppercorns, which are also used both in the deep-fried urad dhāl snack medhuvadā, and the bōnda, to impart a light flavour.

The use of pepper in cuisine is well illustrated in the *Mānasollāsa* written by King Someshwara in the twelfth century AD. This work was written in Kalyana, about 160 km west of modern Hyderabad, and reflects the influence of both southern and northern food styles.[49] The iddarika, a forerunner in name of the present idli (q.v.), was made from fine urad flour, fried in ghee, and then spiced with pepper and jeera powder and asafoetida. Purika were patties of bēsan (q.v.) powder or boiled ground pulses, dusted with salt, pepper, asafoetida and sugar, and then deep-fried. An elaborate dish was prepared by seasoning a mixture of mung dhāl, pieces of lotus stalk and priyala (chironji) seeds with green ginger pieces and asafoetida, frying the lot in oil, and boiling it to a curry; to this could be added pieces of brinjal, mutton, jackal meat or even animal marrow, the dish being finally dusted with black pepper or dry ginger. A beverage termed phanta consisted of diluted molasses sprinkled with pepper, and another beverage, majjika, consisted of churned buttermilk dressed with black pepper and mustard seeds. Chakkalika were pieces carved out of a whole roast pig, eaten after seasoning with either lemon juice, or with rock salt and black pepper.[49]

Further north, the use of pepper was less common. Thus the *Rājatarangini* of Kalhana, written in Kashmir in *c.* AD 1200,[267] rarely mentions pepper. The *Mahābhārata* describes a feast in which was served 'shoulders and rounds of animals dressed in ghee, sprinkled over with sea salt and black pepper, and garnished with radishes, pomegranates, lemons, fragrant herbs, asafoetida and ginger'.[58] The *Sushrutha Samhitā* describes seven types of meat preparations. One of these was vesavara, ground meat used for stuffing: boneless meat was first boiled, then ground fine, and finally cooked with ghee, molasses, black pepper and ginger in numerous variations.[299] Pepper was of course an important item in the health-medicine repertoire, classed as having a pungent taste as well as a pungent aftertaste. It strengthens the dōsha pitta, increases the metabolic rate, improves blood circulation and stimulates bladder function.[34] Pepper is of outstanding value in treating coughs and colds, and a mixture of lemon, honey and pepper controls hiccups and mitigates gas discomfort. Trikatu, the triple combination of equal amounts of ginger, long pepper and round pepper, is prescribed for ailments that relate to deranged kapha (shown in body stability, firmness and flexibility) and deranged vata (which has to do with such states as breathing, animation and inspiration).[34]

The early Indian system of weights is set down in the *Mānava Dharmashāstra* and the *Arthashāstra*.[16] It starts with the likya or

peppercorn, one of which is equated to one black mustard seed, after which three of the latter are equated to one white mustard seed, and so on (*see* weights, measures and lengths).

Pepper was a spice greatly valued in medieval England and Europe, being used to preserve meat when all animals had to be slaughtered, as winter closed in, for lack of fodder. Thus early visitors to India from the West showed great curiosity about pepper. Odoric of Pordenone, a Franciscan friar, sailed around the tip of south India to China, and described the climbing pepper plant, which resembled 'a vine in its growth and its clusters of fruit, and an ivy in its leaves'.[29c] Giovanni di Marignolli spent sixteen months in Kollam (Kerala) on his return by sea from China:

> On Palm Sunday AD 1357 I entered Columbum, the most famous city in the whole of India, where all the pepper in the world grows. It grows on creepers, which are planted exactly like our vines and first produce wild grapes of a green colour. Thereupon a kind of grape forms containing red wine, which I have squeezed out on to the plate with my own hand as a condiment. Thereafter they ripen and dry on the trees. And when the immoderate heat of the sun has dried them hard, they are struck down with staves and collected on linen cloth spread out beneath ... Pepper is not burnt, as has erroneously been stated; nor does it grow in deserts, but in gardens.[166]

A German soldier, Hans Schiltberger, in about AD 1410, detailed three types of pepper in the south of India.[29c] The lure of spices brought Vasco da Gama to India in AD 1498 and the produce that he took back with him was said to have paid for his entire expedition six times over. The *Carriera da India* was established for the regular export of spices to Portugal, and one shipment alone consisted of 1500 tonnes of pepper, 28 tonnes of ginger, 8 tonnes of cinnamon and 7 tonnes of cloves,[326] the value of which must have been astronomical in Europe. In about AD 1700 Manucci noted that south Indians 'sip a concoction which is some water boiled with pepper',[21c] doubtless a reference to rasam (q.v.). The British colonialist adopted this preparation as a spicy soup which was called mulligatawny (q.v.), a literal translation of the Tamil pepper-water.[1h]

Persian words To start with, there is rice itself. The old Persian virinji (later birinj) is only a short step from the Sanskrit vrīhi and varisi, and in turn the Tamil arisi, besides the meat-rice dish biriyāni. Wheat in old Persian was gandhum and in Sanskrit gōdhuma. The cumin seed, zīra in Persian, is jeeraka in Sanskrit, while the Persian-Arabic zaffran (which in Sanskrit is kēsar) is saffron in English. The almond, vādām in old Persian, became vātāma, which Charaka and Sushrutha used for the sweet almond (the bitter form was vatavairi), and which became bādām in Hindi.[26Ab]

When food is cooked in a seal of dough it is termed dumpukht,

literally air-cooled in Persian, and is frequently shortened simply to dum, as in dum-āloo. The word palāo (q.v.) has entered every language in the world: it figures in Sanskrit as palāo-mevach in the *Yāgnavalkya Smriti* (first century AD)[299] and stems from the Persian-Arabic pilāv or pullāo. The word āchār (q.v.) for pickle is of similar origin, though various others have been put forward (*see* pickle). The delicious jilēbi (q.v.), a term first used in India in a Jain work of about AD 1450,[186] and a later Kannada work of about AD 1600[67b] is, according to Hobson-Jobson, apparently a corruption of the Arabic word zalābiya or Persian zalibīya.[1r]

pestle *See* milling.

pewter An alloy of tin and lead, almost unknown in India. In the fourteenth century, the traveller Ibn Battuta describes a meal at the Sultanate court in Delhi in which a post-prandial drink of sweetened barley (termed fuqqa) was served in pewter tankards.[53] These were perhaps imported.

phala Literally, and in common parlance, the term phala (Hindi phal) means fruit, and both Charaka and Sushrutha have, in their classification of edible materials, categories of phalā-varga (fruits) and shāka-varga (vegetables).[24.33] But the word is used in a larger sense in ritual terms to denote all foods that are not raised with the help of the plough, in contrast to foods that are so raised, termed anna. Uncultivated foods may include wild cereals, millets, fruits, vegetables, green leaves, roots and tubers, and forest produce. Only such foods are permitted to those who have renounced the world as ascetics, and frequently to householders who observe vows or are on fast.

In the taxonomy of orthodox cooking, phalāhār refers to the product obtained by cooking phala using ghee, fire and milk products.[22]

phālsa Of indigenous origin, *Grewia subinaequalis* yields a small, sour, purplish berry from which is made a refreshing acidic drink. It was one of the eight beverages permitted to Buddhist and Jain monks.[6c] The *Charaka Samhitā* lists it among the sour fruits from which can be made the class of drinks termed rāga.[24]

pheasants Around 300 BC, Megasthenes describes tame pheasants in the walled-in park of the royal palace of Chandragupta Maurya, along with wild peacocks, ornamental trees and lakes full of sacred fish.[19a] Four centuries later, Aelian repeats this in his monumental *Collections of History*.[40d]

pheni Exceedingly thin, extended strands of wheat dough extruded from certain hard wheats and vended in bundles, termed pheni in Sanskrit and Hindi, and seviyan in Muslim circles. They are commonly made into desserts with milk and sugar. The *Mānasollāsa*, written in the twelfth century, refers to pheni,[49] and Annaji, in AD 1400, refers in Kannada to 'delicious strands of pheni' served at a meal.[67b] It figures

in Gujarathi historical literature as phenaka (sutar-pheni) and pahalika (khaja-pheni),[186] while the *Varanaka Samuchaya* of AD 1520 mentions 'thin pheni'.[136] Grierson in Bihar a century ago describes phēni as 'a frothy sweetmeat'.[285]

In Mughal times the humbler Muslims ate desserts of pheni.[53] A century ago, the Muslim community in Nellore first boiled strands of pheni in milk and sugar, and then fried the product in ghee to obtain a rich dessert[258] (*see also* sēviyan).

phulka A thin circle of rolled-out wheat dough roasted dry on a thavā (griddle) yields a chapāti; this, when placed immediately thereafter on hot embers, puffs up to yield a phulka, which is best eaten piping hot.

pickle The Sanskrit sandan or sandin, Gujarathi athanu, goondas and chundo, Tamil ūrukāi, Kannada uppinkāyi and Hindi āchār. The origin of the word āchār is obscure. In AD 1563, Garcia da Orta describes a conserve of cashew fruit in salt, 'and this they call Āchār'.[1a] About thirty years later Linschoten, writing in Dutch, uses the same word.[1a] In AD 1687, bamboo-āchār and mango-āchār are noted in Thailand and Indonesia,[1a] which leaves the origin of the word open. Though commonly ascribed a Persian origin, Hobson-Jobson hints that it may even have originated in western Asia from the Latin acetaria.[1a] Considerable prior use of the word āchār does not support the view of Rumphius in AD 1750 that āchār derives from the Spanish word axa for the chilli, which the Portuguese write as achi.[2a]

Pickling frequently falls into the ritual category of 'cooking without fire', only the heat of the sun being employed to create an edible product. In the seventeenth century, the *Shivatattvaratnākara* written by King Keladi Basavaraja,[51] refers to relishes as a class as uppadāmsha; this consists of five types, of which one is pickles cooked without fire. A Kannada work of AD 1594, the *Lingapurāna* of Gurulinga Desika,[67b] describes no less than fifty kinds of pickles. By far the most important material for pickling is raw mangoes (whole baby fruit, wild mangoes, cut slices, or the hard, fibrous avakkāi). Others are limes, lemons, small onions, brinjals, chillies, karaunda berries, pork, wild boar, prawns and fish. Mustard oil in the north and east, and sesame oil in the south and west, are the two vegetable oils popular in pickling for their long keeping qualities. The avakkāi of Andhra is an uncooked pickle. In current practice, it is customary to make use of the fire to make a pickle. Thus mustard seeds may first be fried in the oil of choice; then the mango or lime pieces dressed with turmeric and salt are put in and fried till tender, after which powdered spices (chillies, mēthi seeds, asafoetida) are added, and the mass mixed thoroughly and put by to mature. There are of course numerous

variations (*see also* āchār; chutney; morabba).

pig Both Fa Xian in the early fifth century AD,[19a] and Xuan Zang in the mid-seventh,[8Aj] note that fowls and pigs were not reared in India, and that pork was a forbidden meat to many inhabitants. Literature well before the Muslim advent shows that kshatriya rulers were always partial to pork. In the *Mahābhārata*, King Yudhisthira fed 10,000 brahmins with pork and venison.[187] Even in recent years the Rajput nobility performed the shūlgava sacrifice in which young pigs were first roasted whole; strips of this roasted meat were then marinated in spiced curd, placed with ghee in a wrapper and baked, followed by a final grilling on a skewer.[182] The *Mānasollāsa* written by King Someshwara in the twelfth century gives two methods for dehairing a pig:[49] by covering the carcass with a cloth and pouring boiling water over it to soften the bristles, or by covering the body with clay and then burning the skin away with a fire made of grass. To prepare tasty sunthakas, a whole pig was first roasted on an open fire. Pieces were then carved out and eaten after being seasoned with rock salt and black peppeṛ, or sour lemon juice. As an alternative, long strips ('resembling palm leaves') were carved out of the roast and placed in spiced curds before consumption. Another dish, called mandaliya, was made from the entrails, mixed with marrow and spices, and broiled again on a charcoal fire.[49]

In about AD 1640, Father Sebastian Manrique[20c] noted that in Bengal tame pigs were not eaten, but that wild boar was 'considered a great delicacy by Sikhs and Rajputs'. In south India there were no reservations, and indeed its early literature contains no less than fifteen names for the domestic pig.[101] Wild boar was hunted using dogs and nets;[83] captured animals were fattened with rice flour and kept away from the female to improve the taste of the flesh.[72] Much later, Domingo Paes[21a] describes in Vijayanagar 'pigs in some streets of butcher's houses so clean that you would never see better in any country'.

Currently, certain areas of the country have distinctive pork dishes. Goa has the sorpotel, a curry of pork blood, meat, liver and fat soured with vinegar and tamarind sauce, and the vindāloo, a more liquid curry that uses the rind of the kokum fruit (*Garcinia indica*) as the souring agent. Feijoada is pork cooked with beans, and salted pork is pickled. The Kodavas of Karnataka make a dry pork dish with a dark, thick masāla which derives its colour from the black, sun-drawn extract of the kokum fruit. Wild boar meat is smoked, and also pickled. It was rated highly as meat by the British colonial[336] (*see also* boar).

pigeon The Buddhist *Jātaka* tales refer to the use of pigeons as food,[6c]

as does Sushrutha.[81] A Sanskrit work that originates from Assam, the *Kāmarupa Yātra* (*c.* AD 600–800),[115] specially commends to the upper classes the meat of the duck, pigeon, tortoise and wild boar. Domingo Paes[7a] notes pigeons on sale in the markets of Vijayanagar in the sixteenth century AD. Writing about Bengal in about AD 1640, Father Sebastian Manrique[187] notes however that 'pigeons are not generally eaten, as being of a blue colour they are held sacred to Shiva, but doves are generally eaten'.

pigeon pea *See* thuvar.

pineapple The development of the pineapple is attributed to the Indians of the lowlands of South America.[215] It was first seen by Columbus in November 1493 on his second voyage to an island he named Guadeloupe.[328] The Tepi Indian name for the fruit was nana, and a Huguenot clergyman in Brazil first used the term anānas in writing.[328] The word pineapple derives from its remarkable resemblance to the large stone-pine of southern Europe, and in fact the term pine-apple was already in use for this pine cone long before the discovery of America.[1g] While the pineapple is called anānas in most Indian languages, in Malayalam the term used is poruthu-chakka, or the Portuguese jackfruit,[43b] because of a resemblance in size and shape, and perhaps in flavour, between the two fruits.

In AD 1564 the fruit is described in India, nearly a hundred years before it was seen in England.[1g] In AD 1616 Edward Terry describes its 'taste to be a pleasing compound, made of strawberries, claret-wine, rose-water and sugar, well-tempered together'.[1g] The *Ain-i-Akbari* in AD 1590 quotes its price in the Delhi market as 4 dāms each, an amount that could then buy 10 mangoes.[28] A decade later Jahangir calls it a fruit of the 'European ports' in India, but adds that 'some thousands' were being grown in gardens in Agra.[8Bn] In about AD 1665, Bernier notes in Bengal 'the innumerable islands abounding in fruit trees and pineapples'.[8Bd]

There is no evidence whatsoever of the presence of the pineapple in India prior to Columbus. But in Europe there are some puzzling facts.[215] In 1837 Williamson found numerous products from India in ancient Egyptian tombs, among which were glazed pottery models that looked like pineapples.[328] In the Assyrian ruins at Nineveh are to be found carvings of various foods served at a banquet; of one of these Rawlinson says: 'The representation is so exact that I can scarcely doubt the pineapple being intended. Mr. Lyard expresses himself on this point with some hesitation.'[1g] In Pompeii, which was destroyed in AD 70 by a volcanic eruption, the reproduction of a fruit on a mural 'is most certainly based on a pineapple', a statement by E.D. Merrill,[285] who is nevertheless strong in

his view that no transfer of food plants took place prior to Columbus between the New World and the Old (*see* maize, sītaphal).

pishta From the Sanskrit, meaning ground or powdered, arise words like pishtaka for a cake of flour, pishataka for flour mixed with water, pistaudana for a dish of rice cooked with mince meat, and pishtak, an early Bengali sweetmeat.

pistachio *Pistachia vera* is a small evergreen tree of ancient Mediterranean provenance, with centres of diversity in Turkey and Kirgisthan.[7a] The hard, white nuts, which split open when they ripen, have always been imported after salting into India. Charaka refers to them as abhīsikha.[6f]

Ibn Battuta notes samōsas stuffed with pistachio nuts in the Sultanate court,[53] and Abul Fazl in the time of Akbar lists them as items earlier scarce but now 'found everywhere'.[28]

pitta One of the three bodily humours or dōshas (q.v.), pitta is composed of the single element fire. Accordingly, pitta influences the metabolic processes of the body like digestion, combustion, body temperature and skin colour, besides contributing to intelligence, memory, enthusiasm and high ideals.[34] The main location of pitta is considered to be the small intestine in the upper abdomen. Accordingly, an increase in pitta is treated with laxatives. Fierce heat and overexposure to the sun, and grief, fear and rage can all bring on an upsurge of pitta. It can be pacified by foods that are sweet, like sugarcane juice and coconut water; by astringent foods like the āmla, figs, honey (which in ayurveda has an astringent aftertaste) and barks of certain trees; and bitter foods like turmeric, coriander, bittergourd and neem leaves.

A reduced pitta is revealed in a loss of body heat, poor appetite and loss of skin glow. Pitta strengtheners are foods that are sour, salty and pungent like chilli, pepper, nutmeg, acid fruits and curd[34] (*see also* kapha; vata; dōsha).

plantain *See* banana.

plates, leaf *See* leaf plates and cups.

plum The *Prunus* family includes the cherry, plum, peach, apricot and almond, all of which are believed to have diverged from an ancestral cherry species of Central Asia.[7d] The cultivated plum, ālucha and ālubukhāra in Sanskrit, represents the link between the various members of this family. Plum varieties were developed independently by natural selection in Central Asia, the Middle East, China, Europe and North America.[99p] Xuan Zang notes in the seventh century AD that wild plums brought from Kashmir were found 'growing on every side' in India.[8Aj] Among the Mughal experiments on grafting was that of peaches on plum trees.[27]

pōli(ka) Pan-fried parātas (q.v.) stuffed with a ground paste of dhāl (usually mung) and jaggery to yield a soft, mildly sweet product, eaten

hot or cold with milk or ghee. They are described in the twelfth-century *Mānasollāsa*[49] as pōlikas or pahalikas, and in the Kannada work *Parshavanātha Purāna*, written by Parshva Panditha (dated AD 1222), as hōligē.[67b] This word, even now in use in Karnataka, had superseded earlier terms like pūrigē and hūrigē.[67b]

A related product is pūran-pōli. A brief description in the *Mānasollāsa*[49] of the item pūrana suggests an item similar to the pōli. At present pūran-pōli denotes a loaf of wheat, mashed dhāl and jaggery baked in an oven, thought by some to be a Parsi adaptation for making the pōli in a form that could be baked and cut like a cake and eaten with a fork.

pomegranate *Punica granatum* is an ancient fruit native to Iran, and indeed the old Persian name dulim is echoed in the Sanskrit dhālimba and the Kannada dhālambi. It came to India very early; excavations at Harappa in the Indus Valley (*c.* 2000 BC) yielded 'two polychrome earthenware vases, the former shaped like a pomegranate and the latter shaped like a coconut'.[164] The *Mahābhārata* describes a picnic meal in which the cooked animal food was garnished with pomegranate.[58] Charaka notes two varieties of pomegranate, and lists it as one of the sweet fruits from which a panaka beverage was derived.[24] The pomegranate was a fruit permitted to Buddhists.[6c] It is mentioned frequently in early south Indian literature;[69] a wandering minstrel was fed, for example, by a brahmin with cooked animal flesh garnished with pomegranate.[72]

Even in the seventh century AD, Xuan Zang notes that pomegranates and sweet oranges were grown everywhere.[8Aj] Ma Huan[20a] observed it in Bengal in the fourteenth century AD, Ibn Haukal[8Ba] in Kasdar, and Ibn Battuta[8Bf] generally in the country. In Vijayanagar, Domingo Paes noted 'many pomegranates' and Father Monserrate[106] remarked on 'the goodly gardens (of Surat) with pomegranates, lemons, melons and figs continuing all the year'. As early as in AD 1300 Amir Khusrau remarked on the excellent flavour of the pomegranates in Jodhpur,[29c] and a couple of centuries later Sikander Lodi declared these to be superior to the pomegranates of Iran.[310]

In ritual terms, the pomegranate is classed as a 'fruit for chewing', along with grapes and bēr, and these fruits formed the first course at a meal served to King Shrenika,[6k] described in the *Bhavissayatakaha* of *c.* AD 1000.

Dried seeds of the pomegranate, termed anārdhana, are used as a mild souring agent in north India. Anār juice is greatly relished.[2r]

pomelo *See* citrus.

pongal The south Indian New Year, when the sun turns north in about mid-January, is called Pongal, an agricultural festival when cows are garlanded with mango leaves.[169f] A

pot of rice is placed on the fire, and just when it is about to boil over (pongu means to boil), cries of 'pongal' rent the air, and the pot is offered to Lord Ganesha. In the mātu-pongal rite, the milk should actually boil over.[144A]

The dish pongal(i) is a rice-mung dhāl preparation in ghee, with a spicing of jeera, pepper, green ginger and asafoetida. These spices would be avoided in the sweet version, sakkarai-pongal(i), and jaggery, cardamom powder and cashewnuts would be used instead.

poppy The small black seeds of the poppy, *Papaver somniferum*, constitute the khaskhas or posto condiment in an Indian kitchen, particularly in use in Bengal. An item in which it is used is the sweet leavened bread khjuru or khajūr, to the dough of which both sugar and poppy seeds are added before fashioning into small slabs that are deep-fried in ghee. Khjuru is described in Mughal times by Father Sebastian Manrique as being of a delicate flavour.[187]

The capsule of the poppy flower is the source of the narcotic opium, in Greek opion and in Arabic ofyun, from which derive the Sanskrit ahiphena and the Hindi afin.[2g] A knowledge of this drug was brought to India in about the eleventh or twelfth century AD by the Arabs, and Uttar Pradesh and Malwa regions became centres of opium production. In AD 1511 Giovanni di Empoli recorded that the Portuguese admiral Albuquerque found opium in the cargoes of eight ships from Gujarat that he had captured.[2g] In AD 1516 Barbosa noted that opium was an export item from India, and both Acosta and Linschoten, before the end of the sixteenth century, described at length Indian indulgence in opium.[2g] In AD 1668 Bernier observed that the Rajputs consumed it as a stimulant on the eve of a battle.[80A]

Father Monserrate[106c] described the preparation of opium, referring to the poppy not as khākhas, then its common name, but by the old word post.

> The juice is first drained from the pods, which are split for the purpose; these are then allowed to mature; then the seeds are removed, and the pods thrown into water, in which they are kept immersed until the liquid assumes the colour of wine. It is allowed to stand a little longer, and is then passed off into another vessel through a strainer made of the finest linen. After impurities have been removed, the makers of this drink then eagerly quaff it in cupfuls. They eat no meat, garlic, onions or anything of that kind. They even abstain from fruit, and are particularly careful never to take any oil, which is fatal after opium or this drink. They eat only cooked pulse and any sweet food. Then they put their heads between their knees, and sleep as heavily as did Endymion ... the nature of this drug is such that it numbs and freezes the impure desires of the flesh ... the drink is commonly known as post.[106c]

(*See also* bhang.)

porcupine Porcupine as a food item is noted in the *Rāmāyana*,[109] and Charaka and Sushrutha list it under edible meats.[24,81] It is mentioned as a meat favoured by the Kuruvars of south India during the early Christian era.[186]

pork *See* pig; boar.

Portuguese impact The three visits of Vasco da Gama to Kerala commencing in AD 1498 established Portuguese presence in Kozhikode, Kochi and Kannur. In about AD 1512 Albuquerque took over Goa, and developed it into a thriving metropolis, a bastion of Catholicism and a cultural centre. After about AD 1650 the Portuguese presence waned, yielding to Dutch, French and British influence. By then over 20,000 Portuguese had settled in Bengal at Hughli and Rajmahal,[329] influencing local practices in this area.

The Portuguese impact was considerable. In the first place, they adopted into the Portuguese language many Indian words for the new food items that they encountered, which in turn frequently passed into the English language. Next they were active in transferring from Mexico and South America (*see* Mexico, foods from) exotic plants of possible commercial value in their eastern dominions. Often, in the process, native American-Indian names for these plants were absorbed into Portuguese-Spanish, and thence into English and even Indian languages. Finally, both in Goa and Bengal, where they had a considerable presence for a long period, the Portuguese influenced the cuisine of these areas to yield totally new products. Each of these areas will now be considered.

First, the Indian words. Noting the great value of numerous products derived from the toddy palm, the Portuguese named it the 'excellent palm' or palmeira, which later came to be written as palmyra. The 'face' on a coconut, stripped of its outer fibre to reveal two eyes, a nose and a mouth, led to its being dubbed cocos (monkey-face or hobgoblin), which was anglicized to coconut. The Malayalam chakka became jack fruit, while the plantain (a word used only in India for the banana) derived from the huge leaf, planta. In Portuguese graõ means a grain; this was first used for the Bengal gram, and soon the word gram became synonymous with pulses. The Malayalam vettilē leaf became the betel leaf, and the nuts chewed with it, adakka in Malayalam, was Europeanized to areca. (Individual entries may be further consulted.)

Brought to India were terms for food materials in use in other countries. The acaju of the Tupe Indians of Brazil became kāju in many Indian languages and cashew in English, while the Tepi Indian term nana for the pineapple crossed the seas as anānas, which entered several Indian tongues. The fruit papaya came with a variant of that name from South America to the Philippines and thence to India, along with such variations as pawpaw and papeeta. The term sapōta derives from the word sapodilla in use for the tree and fruit in its native Mexico and Central America; another name for the tree in the New World was chicle, which was Indianized to

cheeku. Both guava (from the American-Indian guajava, pronounced guahāva) and avocado (from aguacate and ahuacatl) reached India by way of Portuguese-Spanish tongues. The passion fruit (q.v.) is named after its exotic flower, in which Catholics saw signs of the passion of Christ on the Cross. Niam is a term in use on the west African coast, which became in Portuguese niammas and yammes, to end up in English as yam. Tomato (tamātar in Hindi) is from the South America tomatl, and potato is from the word batāta (which entered several Indian languages directly), itself a case of mistaken identity (*see* potato). Cacao in the Mayan tongue of South America was smoothened out to cocoa. The chilli in all its forms came to India from Mexico with its name intact, but Indian languages simply adapted the word for pepper (which already existed in that language) to describe the new pungent material (*see* chilli).

So much for mere nomenclature. There were actual plants of perhaps even greater subsequent impact which the Portuguese and Spanish brought to India from the New World. Groundnuts came to more than one coastal location; they were first cultivated only in about AD 1860, but then rocketed to become the dominant oilseed crop of India (*see* groundnut). The tapioca (q.v.), also from South America, is today a major staple food in Kerala and Assam. The great historical staple of America, maize (q.v.) or corn, has established a considerable presence in India as a food for humans and animals, and as a source of industrial starch.

Interaction in Goa between the existing Saraswath food and the strong Portuguese presence soon gave rise to a striking and distinctive cuisine, as described elsewhere (*see* Goa, food of). The curries of the neighbouring East Indians, a small but distinctive Catholic community that speaks not Konkani, as in Goa, but Marathi, also felt the Portuguese presence, in the use of vinegar for cooking pork and fish, in the stuffing of roast suckling pigs, and in the delicate salted tongue relish that uses vinegar, jaggery, lime juice, saltpetre and salt.

In Bengal, the Portuguese presence first stimulated the preparation of sweet fruit preserves. A more lasting effect was by way of creating a demand for cottage cheese, which in turn gave the Bengali sweetmeat maker a new raw material, chhāna, that set off a fantastic array of Bengali sweetmeats (*see* Bengali sweets).

Two Portuguese botanists who lived in India wrote classic volumes that incorporated a great deal of information on Indian plants and herbs. Garcia da Orta published in AD 1563 from Goa his *Colloquios dos Simples e Drogas e Cousas Medecinaes da India*, and Christoforas Acosta published in 1578 his *Tractado de las Drogas y Medecinas de las Indias Orientales*, both mines

of information on food and medicinal plants.

pot herbs *See* green leafy vegetables.

potato *Solanum tuberosum* is believed to have been domesticated by native American Indians on the high plateau of Bolivia-Peru in the general region of Lake Titicaca, sometime between 5000 and 2000 BC.[7w] Europeans first saw sweet potatoes in South America in AD 1537, and around 1570 a Spanish ship brought the first potatoes to Europe. The legend that Raleigh and Drake were the first to do so is now generally believed to be incorrect.[7w] Though termed papa in South America, they were incorrectly called batāta (the name for the sweet potato) when John Gerard first described them in English in 1597, and this name stuck. As a result of this confusion in nomenclature, it is doubtful whether the potato mentioned in the well-documented dinner given in Ajmer by Asaf Khan to Sir Thomas Roe in 1615,[82] and again noted by Fryer in 1675 as constituting a garden crop (along with the brinjal) in Karnataka and Surat, was really the potato at all, and was perhaps the sweet potato, known much earlier in India.[32d,330] However the identity of the 'basket of potatoes', considered worthy enough to be offered as a gift to Warren Hastings around AD 1780, is not in doubt, since he even invited members of his Council to dine with him and partake of the unusual gift.[32d]

In about AD 1830, potatoes came to be grown on terraced slopes in the Dehra Dun hills through the efforts of a Captain Youns and a Mr Shore, who simultaneously developed the hill stations of Mussoorie and Landour.[331] By 1780, potatoes, peas and beans, according to an 1860 report,[332] were in high repute as foods in Calcutta; the report adds that 'the Dutch are said to have been the first to introduce the culture of potatoes, which were received from their settlement in the Cape of Good Hope. From them the British received annually the seeds of every kind of vegetable useful at the table, as well as several plants of which there appears to be much need, especially various kinds of pot herbs'.[332]

Potatoes in India were first accepted only by Europeans, and then by Muslims. But with rapid general acceptance, the potato is now grown all over the country, though at first it grew especially well in elevated terrain. A major breakthrough in the control of viruses spread by aphids enabled very high yields of potatoes even in the plains.[333] It has literally invaded the Indian kitchen. A dry potato bhāji is a perfect accompaniment to the chapāti, parāta, pūri and pāo, and makes excellent stuffing for a masāla dōsai in the south. It constitutes a dry stuffing for parātas, samōsas and kachōris, and is cooked with, say, peas to a wet curry. Rings, fingers chips and crisps are deep-fried potato variations, while

potatoes may themselves be stuffed and cooked, or boiled and placed in curds as a raitha relish. On ceremonial occasions when plough-grown anna is interdicted, the potato may be eaten as a staple food. Even potato peels are crisp-fried to relishes in Bengal and Karnataka.

pots *See* cooking (utensils).

poultry *See* chicken; game, wild.

pounding *See* grinding devices.

prasād(am) Food that is first offered in a temple to the presiding deity, and then given to devotees, is termed prasād. In the Hindu belief, such prasād is pure essence or rasa, which when consumed is converted totally into mind or manas, the finest form, and leaves no dense residues (to be eliminated as faeces) or resi-dues of medium density (that are transmuted into flesh). Each temple has its own form or forms of prasād, which will usually reflect the food of the region. In the Padmanabha temple in Thiruvananthapuram, this is an aviyal, in the Thirupathi temple of Venkateshwara the prasād is a laddu, and in the Vishnu temple at Kanchipuram, a spiced idli. In smaller temples, it may simply be a sweet boiled rice (*see* festival and temple foods).

prathamān A generic class of sweet confections in Kerala based on milk or coconut milk. In a pazha-prathamān, fruit (bananas, jackfruit) are fried in ghee before boiling them in milk and sugar. Alternatively mung dhāl, and coconut milk and jaggery, could be used to yield parippu-prathamān. A special pāladaprathamān will carry paper-thin shreds of a rice-roll, separately prepared, in milk sweetened with sugar; the ada-prathamān is similar, but is sweetened with jaggery, and uses coconut milk.

preserves Traditional Indian preparations for the preservation of fruit and other materials include pickles, chutneys (sweet) and morabbas, also a sweet form of preserves.

Writing of the Portuguese in Bengal in AD 1668, Francois Bernier[19b] describes them as

> skilful in the art of preparing them (sweetmeats), and with whom they are an article of considerable trade. Among other fruits, they preserve large citrons, such as we have in Europe, a certain delicate root about the length of sarsaparilla, that common fruit of the Indias called amba (mango), another called ananas (pineapple), small mirobalans (āmla), which are excellent, limes and ginger.

This account suggests morabba-type preserves. (*See* pickles; chutneys; morabbas).

pucca food *See* cooking.

puffed grains When rice is tossed on very hot sand it swells to a plump, glistening product, called murmura, muri and pori. If paddy with the husk on is used, the product is termed kheel. Parboiled rice and paddy puff particularly well. Both chana (Bengal gram) and mung are puffed to crunchy, porous products, and the former product is ground to the versatile flour, bēsan (q.v.). Parched grains (q.v.) are made by partial

puffing, followed by a pounding operation for flattening.

In Sanskrit ulumbāh refers to puffed chana and mung grains. The terms missita and dhanidaka also appear to mean puffed, rather than parched, grains. Charaka probably refers to both, as a class, as bhrshta-dhānya. The Tamil word pori, which is still in use for plump puffed rice, occurs in the Sangam literature of between the third and sixth centuries AD; it figures in the *Karuntogai* as a favourite food eaten with milk or as a sweet confection (possibly as a laddu bound with jaggery, as at present). All over India, crisp puffed rice, called muri or murmura, is eaten as a snack after it is dressed with a little pungent mustard oil, or in a mix with wedges of fresh coconut, puffed Bengal gram, roasted groundnuts and raw onions (*see* murmura).

pulses A collective term for the edible seeds of leguminous plants like grams, beans, lentils and peas; about a dozen are in common use in India, several from remote antiquity. To take the archaeological record first, green peas were found in Harappa, Kalibangan and Daimabad in 2000 BC sites.[85] Masoor, dated about 1800 BC, has been found at Navdatoli, Ter and Chirand.[85] Mung and kulthi (horsegram) grains occur in only slightly later phases at Navdatoli-Maheshwar; and so does urad,[32a] which also occurs at Daulatpur.[294c] Further south kulthi has been found at Tekkalakota.[32a] (Individual entries give details.)

The obnoxious kēsari (q.v.) has been found at sites dated between 2000 and 1500 BC in Chirand (Bihar) and at Atranjikhera and Navdatoli (Maharashtra).[32a]

The literary record is of course even more extensive. Māsha (urad) occurs even in the *Rigveda*[6a] and from the *Yajurveda* onwards the 'three Ms', māsha, mudga (mung) and masūra (masoor), are constantly in evidence as the three most commonly used pulses of their time.[6] Soon after appears kulattha or kulthi,[6b] while the literature of the Buddhist-Jain period records a host of other pulses—kalāya (peas), ādhakī (arhar, thuvar), chanaka (chana, the Bengal gram), alisandaga (perhaps the large kābuli-chana, stated to come from Alexandria) and nishpava (the cowpea, lōbia or karāmani). The rājmāsha is mentioned by Charaka; this is not the present rājmah (which only came to India from South America in the eighteenth century), but some large, māsha-like grain, perhaps the nishpava. Much later the name rājmah was transferred to the New World kidney bean. The moth or mat bean, makusthaka, finds mention in the *Taittirīya Brāhmanā*. (For details, individual entries under these pulses may be referred to.) Other pulses of more recent origin are the guār-phali or cluster bean, the badā-sēm (jackbean or sword bean), the bhakla or broad bean, the lima bean, the rājmah (haricot or kidney bean)

from South America, and the winged bean, a recent entrant (*see* individual entries).

Apart from being cooked into liquid or drier forms eaten with rice and rōtis, numerous means of using this array of pulses is reflected, though without much detail, in Sanskrit literature. The kulmāsha was perhaps a dish of parched pulses dressed with jaggery and oil (the present ghugri), and had the connotation of a poor man's food in the Vedic period.[6a,407] Several pulses, in the *Sūtra* period, were extracted to yield sūpas (soups), and the grits of fermented māsha and other dhāls were fashioned into various shapes for frying to vatakas (vadās).[6b] To sūpas and vatakas during the Buddhist-Jain period are added pārpatas, the modern pāpads (q.v.). After about 350 BC, pea soups appear to be a popular item.[6c]

Charaka[24] described more than twenty-four kinds of pulse extracts, termed yusa, drawn mostly from mung and kulthi. Pārpatas (pāpads) continued to be fashioned from various pulses. Puffed chana and mung yielded products called ulumbāh, while parched and puffed products as a class were termed bhrshtadhānya.[24] Pulses in general are sweet and astringent foods in ayurvedic terms, except for the horsegram which is considered pungent.[325] Urad, kulthi, lōbia (cowpea) and hyacinth bean (sēm, avarai) are all classed as hot, but the thuvar, chana, mung, masoor and rājmah are cold.[325] Consumption of pulses by those who are of the vata type is not recommended.[34]

The *Mānasollāsa* of AD 1130, written by King Someshwara of Kalyana, records numerous pulse-based dishes.[49] Vidalapāka contains the flour of five pulses (chana, masoor, rājmāsha, mung and parched thuvar), seasoned with turmeric, rock salt and asafoetida, and cooked on a slow fire. Vatakas were the fermented and fried urad vadās of today; these were soaked in milk to give kshīravata, or in kānji (sour rice water) or, later, in sour curd (the dahi-vadā). Another product mentioned without description is the manahvātaka. Yet another version was the gharika, perhaps the present garagē of Maharashtra: this is described as an urad vadā with seven or nine holes in it, fried very crisp in oil to a dark brown colour. To make katakarna, a paste of pre-soaked green peas was salted and lightly fried, nishpava (sēm) powder mixed in, the mass shaped into patties, and deep-fried. Vatika was the wadian or vadi of today, deep-fried lumps of fermented urad dhāl paste. Purika was made from gram flour, the pāpdi of today. Parika was cakes of bēsan powder or ground boiled pulses, spiced with salt, pepper, asafoetida and sugar, and fried in oil. The veshtika was the vedhami of western India, a circlet of spiced bēsan paste (to which some sugar was added), which was rolled in wheat flour before being baked on an earthen

plate. The iddarika, mentioned in the *Mānasollāsa*,[49] was deep-fried balls of fine urad flour, later dusted with pepper, jeera and asafoetida. Pulses could be blended with both vegetables and meat to yield curries. In one recipe, pieces of meat were mixed with a paste of spiced gram, and fried; to this was added tender nishpava (sēm) beans, certain berries, onion and garlic, after which the whole mass was taken up in some sour juice and flavoured. Another meat-pulse preparation was kavachandi, in which plum-shaped pieces of sheep mutton, mixed with gram or sprouted mung and powdered spices, were fried along with garlic, onions and vegetables like the brinjal and radish.[49]

In old Tamil literature, of roughly between the third and sixth centuries AD, references to pulses are surprisingly meagre. The dōsai (q.v.) is referred to,[39] but whether it was made from a mixed fermented batter of rice and urad dhāl as at present is uncertain. The adai is mentioned;[39] today it is made from equal parts of rice and a mixture of no less than four pulses, ground together and shallow fried, but there is no certainty that this was also true fifteen hundred years ago. There is a specific description[83] of 'a savoury food that is a mixture of the small boiled grains of varagu (a small millet) and good boiled pulse', though what this is can only be guessed. While horsegram, beans and lentils are stated to grow in mullai forest areas,[69] there is scant mention of the two pulses, ulundu (urad) and thuvaram (arhar), which are so important at present in fashioning common dishes like the dōsai, idli, rasam, sāmbhār and pongal. There is a stray reference to pastoral people imbibing an aromatic tamarind soup, perhaps a thuvar rasam.[61]

Other historical regional literatures, which are of course of far lesser antiquity than Sanskrit or Tamil, reflect the enormous diversity in the use of pulses that developed in various areas of the country. There is about nine centuries of writing in Kannada, from about the tenth century AD onwards, on which to draw.[67a,67b] An important class of cooked food all through was melōgara, dishes of pulses cooked with greens in which tamarind was not used but coconut gratings were important. One work dated AD 1594 is of the opinion that eating pleasure comes from the different forms of melōgara.[67b] To make one kind, either mung dhāl, avarai beans, urad dhāl, fresh chana or thuvar dhāl were first cooked with sesame seeds, then cooked again with greens, drumstick, chakota (grapefruit), salt and coconut gratings, and finally mixed with ghee and tempered with asafoetida and thick milk. Even strands of fried wheat could go into melōgara. Vegetables meant for it were each carefully and appropriately pretreated: greens with turmeric water

or lime water or alkaline ash-water, and the sūrana root by soaking in rice water and cooking with tamarind leaves to draw out the astringency. A melōgara dish could be sweet, sour or spicy. Pāpads in the Karnataka area are termed happalas, and five kinds are mentioned in a work dated AD 1594.[67b] Another crisp relish was the sandigē; the main kind took the shape of irregular lumps of a spiced rice-urad batter, but there were numerous variations. The crisp relish, chakkali (termed murukku in Tamil) consisted of deep-fried flat spirals of a rice-urad batter.[67b] Several pulse-based vadās find mention through the centuries: one from chana, another of colocasia leaves in a chana batter, and a steamed nuchinundē based on ground, spiced thuvar dhāl and eaten with curds in a work dated AD 1430.[67b] The common daily item huli, better known by its Tamil name sāmbhār, was of course based on thuvar dhāl, with various soft vegetables cooked in it (brinjal, lady's finger, drumstick, etc.). An intriguing item is a dish of chana dhāl cooked with soma: could this possibly have been wine? Raw chana and urad feature in kosamris, uncooked dishes of pulses soaked in water to soften them, and garnished with mustard seeds and coriander.[67b]

Several sweets in the Kannada-language area are based on pulses. Deep-fried pellets of bēsan flour could yield either a savoury snack after being salted and spiced (now called boondi), or a sweet product by being soaked in sugar syrup in various ways to yield the laddugē, pinda, mōtichūr and manōharada-undē.[67b] The jilēbi (q.v.) is essentially a pulse-based (urad or bēsan) product, first deep-fried and then soaked in sugar syrup, which finds a place in a Kannada work of AD 1600.[67b] Mysore pāk (q.v.), the antiquity of which is uncertain, is a bēsan-based sweet confection cooked in hot ghee.

Combination dishes of pulses and wheat also feature in Kannada literature.[67a,67b] Wheat parātas stuffed with a mash of boiled chana, jaggery and coconut constitute the ancient purigē and hurigē, now termed hōligē. A drier, thinner form was the obattu, and a rolled-up, cylindrical form the surali-hōligē(*see* pōli). Mandigēs were similar sweet-stuffed parātas. Rice could of course be cooked with pulses: a mung-dhāl khichadi (q.v.) is mentioned by this name in AD 1648 even in a Kannada work.[67b] The spicy rice-thuvar dhāl blend, bisi-bēlē-huli-anna, is a modern form of the kattogaras abundant in historical Kannada literature.

The historical literature of Gujarat also reflects the enormous diversity of pulse usage in that area. The *Varanaka Samuchaya*, a posthumous work of AD 1520,[136] has fairly extensive lists of both ingredients and prepared items, which are unfortunately mixed up together. Apart from the commoner

pulses are listed vatāna (peas) and val (sēm, the field bean), and a dish of khadi (possibly of curd and bēsan) spiced with asafoetida. Other historical literature in Gujarathi,[186] much of which is of Jain origin, records many more items that contain pulses. The well-known dhōkla (q.v.) made of fermented and steamed bēsan flour is first noted as dukkia in AD 1066. Ground, cooked pulses constituted avaranna or varan, and the baked product vedhami, based again on bēsan, is first mentioned as veshtika. Numerous fried vadās are noted, from mung, kulthi and urad; the last was also dipped in sour liquid bases like rice kānji, buttermilk and curd (the modern dahi-vadā). Also from urad is the gharika with holes, fried to a deep brown. The purika, which today has pride of place as the muthiya and chopadē, is usually made from bēsan, though other pulse flours may be used. The vatika was the current vati; urad flour is fermented, spiced, shaped, dried and put aside, to be fried when needed.[186] The well-known ūndhiu is a five-vegetable stew which is often served with steamed balls of bēsan placed on top. Many Gujarathi sweetmeats are milk based, but pulses also find a place here. There is a sweet, pulse-stuffed ghari-pūri based on maida, and the mohanthāl is a halvā of bēsan. Pūran-pōli is a parāta stuffed with a paste of sugar and arhar (thuvar) dhāl, an item common to many states of the central belt of India (*see* pōli).

While crisp deep-fried snacks, frequently based on bēsan, are popular all over India, Gujarat has a special generic term for them, nāsto. Bēsan crisps are ganthia, and wafers constitute pāpdi. The Bhavnagri crisp is solid and cylindrical, the fofda long and flat, and the masāla slim and spicy. Sēv, made from bēsan, can be either in the form of long, thin wires, or thicker, short strands, or wafers. The snack chevda (elsewhere chivda or chidva) consists of a base of crisp-fried beaten rice mixed with salt, spices, groundnuts, raisins, bits of candy sugar and coconut wedges, a melange of textures and tastes. A mix of several fried items yields bhoosoo. Another class of rather more substantial snack items constitutes farsan, again largely based on pulses. The fluffy dhōkla (q.v.) and khaman are fermented bēsan flour batters, thereafter steamed. The tender, rolled-up bēsan pancake khāndvi is sprinkled over with mustard seeds and green coriander. Deep-fried balls of pulse are termed bhajiyas. Colocasia leaves, coated with bēsan batter, are first steamed and then fried to yield the rolled-up arvi-na-patra.

pumpkins *See* gourds.

punch Panch in Hindi means five, and first paunch, and then punch, was the name that eventually settled on the five-component drink made up at first of arrack, spices, sugar, lime juice and water. It was first noted by Mendelslo in AD 1638 as palepunzen in Dutch, and became

punch about forty years later.[7i] In course of time, numerous recipes for the drink developed, including one with milk in it, described in AD 1823 in Madras.[335] Punch houses were set up in Goa by the Portuguese, and later in Calcutta and Madras.[336]

pūri Rolled-out circles of wheat dough, about ten centimetres across, are deep-fried in hot fat to get swollen pūris, which are either eaten hot as part of a meal, or as a snack with dry vegetable preparations like potato bhāji, or with shrikhand. Tiny gōle-gappas are almost globular pūris, eaten as a festival or roadside snack in north India with a cold, fiery pepper-mustard liquid concoction. The Sanskrit word pūra, meaning blown up or filled up, may have occasioned the name; the Sanskrit term purika denoted deep-fried wheat-based or pulse-based snacks (pāpdi) of a different kind.

puttu A general term for steamed rice items in Kerala and Karnataka. The puttu of Kerala is a breakfast item consisting of alternate layers of rice grits and coconut shreds that are through-steamed in a tube of bamboo or metal, and then pushed out to be eaten with sweetened coconut milk and tiny bananas. The Kodavas of Karnataka have several puttus. A steamed rice mash extruded as fine noodles constitutes nū-puttu (nūl means string), once eaten with jaggery water but now with any liquid curry. Steamed balls of mashed, cooked rice constitute kadambuttu, traditionally paired with a spicy pork preparation. Pā-puttu (pāl is milk) is a thick batter of rice grits (thāri) liberally sprinkled with fresh coconut scrapings and steamed in a metal tray; it is eaten with ghee and honey, or with liquid curries. A dish of finely-ground rice batter also steamed in a tray is thaliya-puttu, which is eaten with a liquid curry of minced-meat balls (kyma-undē).

Q

quail The Sanskrit varthak or varthika, and Hindi bathēr, meat of the quail is highly rated by Charaka.[24] Amir Khusrau (AD 1253–1325) describes it as a food of the Muslim aristocracy in Delhi,[53] and it figures in early Tamil literature as a delicacy.[205a] Plump, tender quails in season were praised by the British as 'flying pats of butter', eaten after light roasting or poaching so as not to ruin their delicate flavour.[336]

querns *See* grinding.

R

rabbit Rabbits as food find scant mention, though old Tamil literature has a reference to poets being feasted by kings on a dish of rāgi, with roasted rabbit as a side-dish.[86c] The British trapped them wild, or fattened them up in their own gardens[123a] for use either in curries or palāos.[336]

radish The radish is a very ancient plant, probably developed in the

Fertile Crescent (q.v.) area of domestication.[7x] It occurs in later Vedic literature as mūlaka, an item to be chewed by way of a digestive after a heavy meal.[6b] There are four varieties of *Raphanus sativus*. The type developed in India has little or no fleshy root; it is called the greater radish in Europe, and is conical in shape and white in colour.[311] The types developed in Europe were purple, red and white, globular in form and with roots, and these are now also grown in India. The so-called rat-tailed radish is also found in India, with such names as sungra, mungra and singri; it seems to have originated in south-east Asia, where it is called mougri.[7x]

The use of radish as a vegetable is described in literature through the ages. A meal described in the *Mahābhārata* notes a dish of venison, sprinkled over with radish, pomegranate, lemon and spices.[58] The *Mānasollāsa* of the twelfth century describes a dish of fried meat and pulses termed kavichandi which incorporates both radish and brinjal.[49] Radish is grown in Kashmir in floating gardens of water-weeds bound with mud from the lake. A current Kashmiri delicacy is gard-muf, which is fish cooked with radish. Radish can be cooked with potatoes, or grated and fried with spices.

In Charaka's classification, the radish belongs to harid or underground food materials.[24] Radish juice is prescribed for fever, while asūta connotes a preserve of radish or gourd in vinegar.[6f] Leaves of the mūlaka or mūli are a valued pot herb, described, for instance, in the *Bhela Samhitā* of *c.* AD 100,[6f] and commonly eaten fried with spicing.

rāgi *Eleusine coracana*, appropriately called the finger millet, derives from Uganda in East Africa where numerous tribal rituals and religious ceremonies are attached to it, and where six of the nine species grow.[7g] The cultivated rāgi species that came to India was *Eleusine coracana*, a tetraploid form with round seeds. This does not cross with the native Indian wild form, *Eleusine indica* subsp. *indica*, which is diploid and has oblong seeds,[7g] and so cultivated rāgi developed in isolation in India.[32]

Wild rāgi grains have been found in Surkotada in Kutch, a late Indus Valley site,[85] and in about 1800 BC both wild and cultivated grains were discovered in Hallur on the banks of the river Tungabhadra.[337] Paiyampalli in Tamil Nadu showed rāgi at 1390 BC levels,[229b] perhaps the cultivated form. Many other food plants of India, jowār, bājra and lōbia, also originated in West Africa and appeared in India around 2000 BC. They may have come to India in several ways: landward across the Sabaean Lane, up the seaward ledge of Africa,[7g] by way of the dhow traffic from Arabia,[266b] or as part of the direct monsoon-propelled traffic across the Indian Ocean in both directions.[338]

The numerous tribal names for rāgi, probably the wild variety, listed

in Watt[2x'] confirm the ancient provenance of this millet. A charming Sanskrit name is nrtta-kondaka or the dancing grain.[407] Sanskrit references to the grain, as rājika or markātaka (rāgi, from rāga or red, is probably colloquial) are rare, but the Bower manuscript (q.v.) of the eighth century AD does have a reference to rāgi.[2x'] It was mentioned as umi, a food in Bihar, a century ago.[285] It was a common grain at one time in the Tamil country, and there are several references to it in early literature. 'Kelvaragu (red grain), (was) spread on the broad surface of a rock to dry', notes the *Kuruntogai*,[101] and the *Puranānūru*[86a] speaks of 'husking and cooking the rāgi grain'. Poets were honoured by kings 'morning and evening with food made by boiling in milk mixed with honey the grain of the rāgi, which grows on dry lands and resembles the eggs of the pigeon',[101] perhaps a reference to the mottled appearance of both. In medical terms rāgi is a cold and sweet food.[325]

Rāgi is consumed as nachni in southern Maharashtra, and widely as a staple food in Karnataka. The grain is gently roasted (sometimes after it is sprouted and dried), ground and sieved, and the pinkish flour eaten as a ball or gruel, either sweetened or salted. This flour is also a popular weaning food.

rainwater Sushrutha[33] recommends that cleanly collected rainwater be filtered and stored in a container of gold or silver, or in a boiled clay pot. It was recommended by him for everyday consumption.[33]

raisins The fourteenth-century traveller Ibn Battuta[54] notes that raisins and almonds were products imported from Khurasan into the country, and accordingly he took some along as gifts to the governor of Multan. Indeed both black and white kishmish have always been imported from across the northwest border, the name itself being that of a grape grown around Quetta and Kandahar. To make raisins, bunches of black or green grapes are hung in a darkened room to dry slowly. Sultanas are derived from greenish-brown Thompson seedless grapes; if exposed before drying to burning sulphur for disinfection, the sultanas have a transparent, off-white appearance.[210b]

Raisins are used to dress such food items as palāo, samōsa, halvā, kēsari-bāth and the like. In medical terms raisins are sweet and cold foods.

Historical literature refers to the use of raisins to temper the raw edge of distilled liquors. Pedro Texeira (AD 1587)[21a] says that 'raisins are thrown in arack (arrack), which takes off its roughness and sweetens it'. In Jahangir's court[86] a wine was made by steeping raisins in rice spirit for three to four days, straining the material, and then storing it in an empty barrel for six to eight months; an extract of dates could finally be added to further improve the sweetness and flavour.

In colonial times, Parsi distillers set up units in the island of Uran, near Bombay, to distil liquor from mahua flowers. Occasionally other materials like raisins were also distilled.[119a] Vinegar, doubtless of an expensive kind, was made from raisins in Rawalpindi in colonial times.[119a]

raitha A class of relishes with a spiced, lightly beaten curd base, with added salt, raw onions, chillies, ginger and fried mustard seeds, into which may be folded raw diced cucumber, tomatoes and even banana, pumpkin and fried bēsan (boondi) granules. It is an invariable accompaniment to palāos and biriyānis. Rāyatha is referred to in the *Mānasollāsa* of the twelfth century,[49] and regularly in Kannada literature from AD 1485.[67b] The palidhya, pacchadi and kicchadi of Karnataka, and the kacholi and kocchumber of Gujarat, are similar curd products.

rajasic One of the three types of guna or inherent temperament, the others being sattvik (q.v.) and tamasic (q.v.). Rajas means energy, which can work either positively towards sattva by the consumption of certain cold, energy-giving foods, notably milk products, or negatively towards tamas, expressed in violence and eroticism, by the regular consumption of hot, spicy, sour and bitter foods. Lord Brahma, the creator, exemplifies the rajasic temperament.

Rajasthan, food of On the rolling sand-dunes of the dry riverbed of the river Ghaggar (believed to be the fabled lost river Saraswathi), archaeologists uncovered a perfectly prepared field, ploughed in two directions at right angles to each other—dated 2800 BC! Even today in the area horsegram is grown in the wider-spaced north-south furrows, and low mustard plants on the more closely spaced east-west furrows, so that shadows of the tall plants do not stunt the growth of the shorter ones.[9] Of course the actual crops grown nearly five thousand years ago may have been different. Hardy crops have always been grown in the area. Excavations in the Indus Valley town of Kalibangan revealed the hardier crop barley in much greater quantity than wheat, whereas the reverse was true for sites slightly more northern, like Harappa and Rupar.[75] Jowār, another hardy crop, has been found at Ahar in 1725 BC strata and more profusely in 1550 BC and 1270 BC layers.[32a] In even later strata (1200–1000 BC) another sturdy crop, bājra, was recovered.[32a] Both these are still major staples in the area.

An early text from Rajasthan, the *Kanhadadē-Prabanda* written by Padmanabha[323] in AD 1455, describes the food served at the table of this ruler as 'sēv, suhali, māndā, pāpads, khājor, salan, badi, lapsika of the panchadari variety, kansar, dhan and many other delicious dishes'. Perhaps the ruler was a Jain or Vaishnavite, which would explain the lack of animal food. The

cuisine of the area at present has numerous rōtis. Bhākri are crisp products made from bājra or jowār on a griddle, and there is even a bēsan rōti with just a little wheat flour added to bind the dough. Dō-patris are thin, soft rōtis that come apart in two circles because of the style of rolling the dough.[231] Dough with spinach, green chillies and onion is rolled out to yield the thavā-roasted missi-rōti. Also thavā-roasted are the round, slightly flattened phefras which are finished on live coals, and eaten with ghee. A distinctive type is the batti, a word derived from vatya in Sanskrit, a hard, roasted ball of wheat which is cracked open and eaten with plenty of ghee.[339] Mung and bēsan flour are the basis of numerous crisp-fried savouries like the mangōdi, gatti and pāpdi, sometimes with mēthi incorporated. Khelada is thick or thin pāpads, and kachōri is a spicy, stuffed wheat envelope. Both vadās and dahi-vadās are made, besides spicy farsan snacks, as in Gujarat (*see* Gujarat, food of). Many vegetables are sun-dried for year-round use as gattey-ke-sāg, as are certain berries (like khair and debra), fruit (bijoda), stems and roots (garmar) and even certain aromatic twigs (sanghār). Sweet items are mostly pulse-based, like bēsan-burfi, sheera of mung dhāl, and chūrna laddus.[339] Rajasthan has an exceptionally high proportion of vegetarians — about 60 per cent of the population. But members of the royalty in Rajasthan are Rajputs who have always eaten meat and have a partiality for pork. The *Mānasollāsa*[49] written by King Someshwara of Kalyana, himself a kshatriya, describes how a whole pig was roasted on an open fire. Pieces of the roast were then carved out, broiled on live charcoal, and eaten after being seasoned with rock salt and black pepper, or with sour lemon juice. In medieval Udaipur, it was customary for a young pig to be roasted on a spit called shūla in a sacrifice known as the shūlagava.[182] Strips of meat were then carved out, marinated in spiced curd, placed with ghee in a wrapper and baked, followed by grilling on a skewer. Such elaborate preparations of pork dishes are described in detail in the *Mānasollāsa,* and yield various items like sunthakas, chakkalikas, mandaliya or 'khanda of vapa'[49] *(see also* meat dishes).

rājmah *Phaseolus vulgaris* is the commonest bean of South America, going back 7000 years in Peru and Mexico.[70] It is not even mentioned in India a century ago by Watt in his exhaustive works.[2,57] It was first grown by French colonialists in their Indian settlements, and then by the British, first as a garden and later as a commercial crop. The name rājmah appears to be one instance of transfer of an already existing term, namely the Sanskrit rājmāsha (q.v.), to a new variety which it somewhat resembled. Similarly, the soybean when it first came, again about a century ago, was for a time

called rāj-shimbi, from shimbi, used for the hyacinth bean (sēm, avarai). The rājmah commonly grown is a large, shiny bean which is black, brown, white or mottled, but over a hundred varieties with an extraordinary range of variations in colour, shape and size have been raised in India. The rājmah is cooked and eaten as a pulse, and canned as baked beans in tomato sauce. It has also been called the haricot bean, kidney bean and navy bean.

rājmāsha A grain first mentioned in literature around the start of the Christian era or slightly earlier, and then by the medical authorities, Charaka and Sushrutha.[6f] Literally meaning large-māsha (i.e. urad or blackgram), rājmāsha is thought to refer to the lōbia or cowpea. When the new kidney bean, *Phaseolus vulgaris*, came from South America to India about a century ago, it came to be called rājmah (q.v.) in Hindi.

rape-mustard *See* mustard.

rasa Rasa or taste is the keystone of Indian dietetics.[34] There are six rasas: sweet (madhura), sour (āmla), salty (lavana), pungent (katu), bitter (tikta) and astringent (kasāya). Each taste is believed to consist of a combination of some two of the five basic elements, namely earth, water, fire, air and ether, and these pairs have been worked out by observation of their action on the body. Thus the sweet taste, madhura, is made up of earth and water; it is a builder of body tissues, which are themselves formed from earth and water. The dōsha (q.v.) kapha is also made up of earth and water, and a sweet-tasting substance will strengthen this dōsha, but will weaken the dōsha pitta (made from the single element fire) and the dōsha vata (made from air and ether). A sour substance (earth and fire) will similarly strengthen the kapha and pitta dōshas, but will weaken vata. The final outcome depends on the interaction of the elements present in the six tastes with those present in the three dōshas in the body.[34]

A second important concept is that of after taste or vipāka.[34] This is the rasa that is left after digestion. The six original mouth tastes are reduced to just three after the process of digestion. Sweet and salt tastes both become sweet. Pungent, bitter and astringent tastes all turn into a pungent vipāka. The sour taste remains sour. A sweet vipāka will strengthen kapha attributes, a pungent aftertaste vata qualities, and a sour vipāka will boost pitta characteristics[34] (*see also* ayurveda, dōsha).

rasa, rasam Rasa in Sanskrit means extract, and Charaka, for example, applies the term to extracts of sugarcane and cereals.[24] Rasam in the Tamil country is a thin extract of thuvar dhāl spiced in various ways, such as with pepper, tamarind, lime, tomato, curry leaves, etc. It is poured on rice as the first course of a south Indian meal; rice and sāmbhār (a thicker pulse preparation with vegetables) constitute the second course, and rice and curds the last

one. Rasam is also called saar, saaru, chaaru and pulusu in other southern languages. The British colonial adopted it as a pungent soup called mulligatawny (q.v.).

rasogollā, rasmalāi *See* Bengali sweets.

ravā Grits of wheat, which can be in coarse or fine form for different end-uses. Other names are sūji, semolina and cream-of-wheat. Ravā was traditionally made in stone chakkis by soaking wheat for six to twelve hours, then drying it partially, and grinding it, followed by winnowing or sieving.[119i] When mechanized roller flour mills came into India about a century ago, their settings could be adjusted to yield different proportions of various wheat products. The outturn of ravā could for example be varied from about 5 to as much as 18 per cent, depending upon the extent of local demand.

Ravā can be employed in several ways. In south India, it is lightly roasted and then cooked with some water to make uppuma, generally eaten for breakfast. For another breakfast item, the ravā dōsai, equal parts of ravā and rice flour are made into a batter, and then shallow pan-fried. A steamed item is the ravā idli (*see* idli). Sweet items from ravā include a ravā undē or ravā laddu of toasted ravā bound with sugar solution, a halvā, a ravā pāyasam with milk, and, perhaps commonest of all, a kēsari-bāth (q.v.). In old Kannada literature, the pāyasam is termed pāyasa, the laddu ghrtapūra, and the kēsari-bāth shāli-anna.[67a,67b]

relishes Variations in taste and texture in an Indian meal are provided by relishes of several types. Pickles (q.v.) can be hot, sour or sweet. The chutney (q.v.) is usually a freshly ground and uncooked item, though in later colonial terms it came to stand for certain sweet preserves (q.v.), which included the morraba (q.v.). Among crisp-fried relishes are pāpads (q.v.), vadās (q.v.) and murukku (q.v.). Special Karnataka relishes are the crisp bālaka, sandigē and happala, and the raw kosamri (*see* Karnataka, food of), while Gujarathi food (q.v.) has the kocchumber and pralēhaka.

rice A primitive wild aquatic grass is postulated to have existed in the huge land mass called Gondwanaland which, some 10 million years ago, split up to yield the present land areas of Africa, India, Australia and South America.[7y,340] From this grass arose two cultigens, *Oryza glaberrima*, which is African rice, and *Oryza sativa*, Asiatic rice. The latter was derived from an annual wild form termed *O.nivara* (given to it from the Sanskrit term nīvara for wild rice); this annual itself arose from a wild perennial form called *O.rufipogon*, which is widely distributed in deep-water swamps all over south and southeast Asia, south China and Oceania. *O.nivara* is still found in ditches, waterholes and on the edges of ponds in the Dekhan plateau and parts of southeast Asia. There are also numerous inter-

grading hybrids between *O. sativa*, the cultivated form, and its two wild relatives. The continuous distribution of all these forms over so enormous an area had led to many conflicting claims in the past regarding the origin of rice, but it is now believed that 'the area including north-eastern India, northern Bangladesh, and the triangle adjoining Burma, Thailand, Laos, Vietnam and southern China appears to be the primary centre of domestication'.[340] From this region rice flowed out in various directions with the constant and widespread movements of peoples in Asia during prehistoric times, being subject at the same time to conscious human selection to meet cultural needs.

In the event, three ecogeographic races developed, named indica, japonica and javanica. These show morphological differences in the type of plant, stems and leaves, resistance to heat and cold, rain and drought, and so on. As food, these rice grains behave differently in the kitchen, and this has been shown to reflect their content of amylose.[341] Indica varieties high in amylose (25 per cent) cook to fluffy masses with discrete grains that are admirably suited to eating with the fingers, as is the practice in India. Low-amylose (15 per cent) japonica varieties cook to sticky masses suitable for eating as lumps with chopsticks, while the javanica varieties are of intermediate amylose content and stickiness. The wild rice varieties of India, termed nīvara in Sanskrit, being uncultivated grains, have traditionally been permitted for consumption by hermits. An aquatic floating type of primitive rice plant yields seeds with a high proportion of husk, called nanoi or nashtaba, and this grain is eaten by Hindus in the north on ceremonial occasions.[2a''] Perennial wild rices still grow in Assam and Nepal.

Archaeological finds of rice date back to 6000–3500 BC in northern Thailand and central China.[340,342] The terraced fields of Kashmir, so typical of rice cultivation, have been placed at 10,000 BC.[343] Was rice grown on them then, or was it perhaps colocasia tubers?[7f] Wild rice grains have been found at Chopani-Mando, and both wild and cultivated rice has been found at 5000 BC levels (by radio-carbon dating) in Koldiwha, near Allahabad.[85,346] Regionwise, the earliest finds of cultivated rice (apart from the very early Koldiwha find) occur in the north and west of India dated about 2300 to 1900 BC, a couple of centuries later in the Indo-Gangetic plain, and at a distinctly later date—1400–1000 BC—in the Dekhan,[8An] suggesting a rather late arrival of rice in south India, after its domestication in the well-watered Himalayan plains. Thereafter the rice plant spread all over India wherever there was a fertile alluvial plain, helped in its spread by the efforts of humans attracted by its prolific grain yields. Also, the discovery of rice as the only staple in 1300 BC layers at

Hastinapura near Meerut suggests that there was enough water then to support the growth of rice in places where only wheat now grows.

Rice is not mentioned in the *Rig-veda*, but innumerable names turn up in Sanskrit literature after its first mention in the *Yajurveda*,[6a] reflecting the sustained development of rice varieties. Summer rice, of a short sixty-day duration, was called graishmukha or shastika,[14d] and another summer variety, dark in colour, was called anu.[344] Rainy season varieties like varshika and vrīhi (also a generic term applied to all varieties of rice) were considered of rather ordinary quality. Autumn rice was rare, but one generic name, shārada, is mentioned. An exceedingly white variety that was not transplanted was called, after its winter season of growth, haimanthaka, hayavana or hayana.[344] But the greatest praise was reserved for the winter varieties called shāli, which were all transplanted. There is mention of rakta-shāli, of kalama-shāli which was hard, white and flavoured, and of mahāshāli, the most highly regarded of all varieties of rice.[14d] This plump rice was grown in Magadha and reserved for royalty or honoured guests. It was served, for example, to the learned Chinese pilgrim Xuan Zang during his stay at the Buddhist monastery at Nalanda in the seventh century AD:[8Aj] 'This rice is as large as the black bean, and when cooked is aromatic and shining, like no other rice at all. It grows only in Magadha and nowhere else.' As early as in 1900 BC long-grained rice, a type highly prized even today, was cultivated at Ahar near Jaipur.[76b] There is a tradition that fragrant bāsmati rice varieties were brought to the Dehra Dun valley by Amir Dost Mohamad of Afghanistan when he was exiled there by the British in 1840.[345] South India has fairly long-established fragrant rice varieties called jeerigē-sambha, rascadam and chingari.

A medieval text from Bengal, the *Shunya Purāna*, states that fifty varieties of rice were even then grown in Bengal. More recently 1500 morphologically distinct varieties of rice have been found in just one district (Jeypore) of Orissa.[346] The varieties in India may well number 200,000.[346]

To early European visitors, rice was an unusual crop. Aristobolus, who accompanied Alexander to India in 327 BC, described it as 'a strange plant, standing in water and sown in beds; the plant is 4 cubits in height, has many ears and yields a large produce'.[18c] Megasthenes, who shortly after that was in Chandragupta Maurya's court in Pataliputra (Patna), noted how rice was eaten: 'When Indians are at supper, a table is placed before each person, this being like a tripod. There is placed on it a golden bowl, into which they first put rice, boiled as one would barley (the Greek dish chondros), and then they add many dainties prepared according to Indian

recipes.'[198] Nearly eighteen hundred years later, in the far south of India, Duarte de Barbosa of Portugal describes the meal of a rajah of Kozhikode in almost similar terms: 'Proceeding to the eating place, he sat on a very low, round wooden seat. Attendants then brought in a large silver tray on which were placed empty silver saucers. On another low stool was placed a copper pot of cooked rice. A pile of rice was heaped on the plate, and curried meat, sauces and chutneys placed in the saucers. He ate with his right hand, using the left to pour water from a silver pitcher into his open mouth without touching it.'[29d] Edward Terry noted that the principal dish of the poor was 'rice boiled with some ginger, to which they add a little pepper and butter', while wealthier people had 'rice boiled with pieces of flesh, and boiled many other ways'.[82] And Bernier, in about AD 1666, spoke of 'fields of rice' in Kashmir, and, in Bengal, of 'the endless number of channels, cut in bygone days from that river with endless labour lined on both sides with extensive fields of rice, sugar, corn ...'[8Bd]

Once rice spread across the subcontinent it became the dominant cereal staple, displacing barley in the north and millet elsewhere. In Vedic times, it was cooked with water to yield ōdana (later called bhatka, and currently bāth), or with milk to give kshīra (now kheer, q.v.), or with sesame seed and milk to yield krsara (perhaps a forerunner of the khichdi of the present). Boiled rice was eaten as such, or accompanied by a variety of items like curds, ghee, sesame seeds, mudga (mung), māsha (urad) or meat preparations.[6a,6b] Both paddy and rice were converted using dry heat into parched (beaten) and puffed grains (*see* parching; puffed grains).

By the start of the Christian era, works by the Indian medical authorities show that rice reigned supreme, with barley a distant second and wheat barely mentioned except as a winter food.[300] Winter, summer and autumn rice was catalogued. While all varieties of shāli or winter rice were extolled, disease-curing properties were attributed to red or rakta-shāli. Shastika, the short-duration summer variety, was considered nourishing, while the poorest in nutritional terms was the monsoon rice vrīhi. Old rice was more easy to digest than new rice, and raw rice the least easy to digest.[24] Rice continued to be used as in earlier times, but some new outlets are described by the medical authorities. A tasty rice soup was made with long pepper (pippali), dry ginger and pomegranate juice. Sushrutha mentions vishyandaka, ghee-fried rice (or wheat) to which was added milk and molasses to give a fluid of medium thickness.[33] Utkarika was probably a fried preparation of rice flour with molasses and ghee, which was rolled up to yield vartika. Another sweet item was

pūpalika, a cake of rice or wheat flour, centred with honey and cooked in ghee; sometimes a stuffing of mung paste could also be used. An unusual item was a large omelette, vrsya-pūpalika, an aphrodisiac made of crocodile eggs and rice flour, fried in ghee.[6f]

The *Mānasollāsa* of the twelfth century AD reflects a resurgence of numerous wheat-based items.[49] Indeed rice in the form of flour appears only as a supplementary item, to be mixed with acid-precipitated milk solids, fried in ghee and coated in sugar to yield kshīra-prakāra. When this mass was shaped into the likeness of peacock eggs an item called morendaka was obtained. The *Shivatattvaratnākara* [51] written by King Basavaraja of the Keladi kingdom, which ran along the west coast, notes eight kinds of shāli, here used as a synonym for rice. In the kānji (or liquid residue) of ordinary rice was boiled the rare bamboo (q.v.) rice (called rājanna-akki or the rice of kings) to yield shudodana, which is thought to resemble thumbē flowers. Tamarind cooked in oil with a dash of asafoetida was recommended for pouring over rice as a 'finish'. Ordinary boiled rice could be exalted to a feast dish by dressing it with pāpads, pumpkin peel crisps, coconut gratings, lime juice, roasted urad dhāl and the like to give various katta-yōgaras. These ōgaras (*see* below) also feature prominently in Kannada literature. A crisp relish described by the royal author was pūri-vilangāyi, to make which grits of rice and mung dhāl were roasted together, spiced, flavoured with camphor, made into marbles the size of areca nuts using rice flour as a binder, and then deep-fried. Brinjal, fried with rice grits and chopped onion, could form one style of filling in a folded turmeric leaf, which when steamed yielded a class of dainties called pudē.

The adjoining Kannada-speaking area has a rich literature in food from the tenth to the eighteenth centuries AD,[67a,67b,261] and rice of course features extensively. Four variations of a cooked rice-ghee combination, flavoured with garlic and salt, called kattogara, are illustrative. Crushed pāpad was mixed with the dish to yield one variation, crisp-fried sandiges (q.v.) made of ash gourd peels another, and various cooked greens yielded yet others. A mung dhāl khichadi is mentioned by the latter name. Further changes were ob-tained by mixing in lime, huli (sāmbhār), turmeric, tamarind, and the powders of roasted rice and chana.[261] Curd rice that would keep for several days was made by cooking the rice in water, in which the leaves of tulasi (*Ocimum sanctum*) or madala (*Citrus medica*) had earlier been boiled, before folding in the curd. Other rice-pulse combinations of Karnataka were the steamed idli and kadubu (these are listed as separate entries). Sweet items based on rice included various

pāyasas (q.v.) of rice, rice-wheat and rice-vermicelli, and a deep-fried delicacy of rice flour and jaggery, now called athirasa.

Tamil literature (q.v.) goes back to slightly before the start of the Christian era, with the bulk of it spanning the third to the sixth centuries AD. Rice is of course the main cereal, mostly eaten boiled, but sometimes with aromatics sprinkled on it.[86a] A dressing of tamarind yielded puli-kari (puli-sādam),[347a] and a dressing of sesame seeds and sugar yielded chitrannam.[347b] Rice could be cooked with pulses (the present pongal, q.v.),[102] or with 'fatted meat',[83] or could be 'well-cooked with ghee'.[304b] There is a poetic description of 'rice which looked like jasmine buds, the grains elongated like fingers and separated from one another'.[83] A Sanskrit work of the sixth century AD, the *Dasakumāracharita* written by Dandin,[104] relates how Gomini, a lass of the Dravidian country, found a husband. He watched the economical way in which she dealt with a quantity of paddy; all the steps in the processing of paddy are elegantly and lovingly described, namely grinding, drying, husk removal and finally polishing the grains with a pounder (whose end is covered with iron plates), followed by winnowing and washing the grains before cooking them in boiling water.[105] Rice stored for three years was considered healthy.[69] Pungalarisi was paddy parboiled by immersion in hot water, which was dried and then pounded. Both the ageing of paddy, and its parboiling, were probably means of hardening the product to obtain better yields of whole rice on milling. Cooked rice was kept overnight in cold water; the rice was consumed, and the liquid drunk as the first input of the following day.[347c] Rice gruel was soured overnight to yield a beverage; this practice, in the Aryan view, was tantamount to eating stale food and, according to the *Baudhyāyana Dharma Sūtra*, was very specific to southern brahmins.[348] In the home of an Andanar or Aryan brahmin, 'rice which bears a bird's name (rājannan)' was served with 'chips of the green fruit of the kommati-malula shrub, peppered and spread with curry leaf and fried in fresh cow butter.... with excellent sliced tender mango pickle'.[83]

Rice was also transformed into a series of appetizing foods. The āppam (q.v.), mentioned in the *Perumpānūru*,[39] was a pancake baked on a concave clay vessel, a popular food eaten drenched in milk. So was the idi-āppam, thread-like extrusions of a dough of boiled and mashed rice, which in Chola times (*c.* the tenth century AD) was eaten, as it is now, with sweetened coconut milk.[347a] Other forms of shallow pan-fried snacks were the dōsai (q.v.) and adai, both based on rice combined with pulses.[39] The *Mathuraikkānchi* contains a reference to the deep-fried sweet-filled moodagam with its rice

casing. In slightly later Chola times appears the athirasam, a dark-brown, deep-fried patty of rice flour sweetened with jaggery.[347a] The idli (q.v.), though a popular breakfast food today, is an extremely recent entrant in Tamil literature. (For other rice products, *see* parching, and puffed grains.)

Rice gruel, kānjika or kānji, fermented slightly to acidity overnight, constituted a beverage particularly popular in the south and east of the country. The cereal was also a source of alcoholic beverages (q.v.). Sura was probably made in the Indus Valley from barley and rice flour. In Vedic writings, it is spoken of in derogatory terms as a drink of the mlecchas or natives. The word later acquired the generic connotation of a strong distilled liquor. Māsara was likewise rice or barley flour fermented with added spices and then filtered clear; it may also have been pre-Aryan in origin. Kilāla was a cereal-fermented, sweetened drink, and kashāya a fermented extract of rice meal and flowers. Prāsanna, whose name suggests that it was a clear drink, was fermented rice flour with spices, tree barks and fruit. In *Sūtra* times spirits derived from the flour of cereals were not permitted to kshatriyas and vaishyas, and were thus obviously regarded as non-elite products. Rice liquor could be strong. Thus in Jahangir's court, rice spirit was put into empty wine casks from Europe together with water and sugar; dregs from other barrels were added, to yield in due course a clear spirit. This was called a 'made' wine and when given to Sir Thomas Roe, the British emissary, made him sneeze, to the amusement of the court.[86] Jahangir in his memoirs describes[56] a strong rice liquor called acchi which he first tasted in Pigli near Attuck, which was fermented for two to three and even for up to ten years. In south India, apart from palm toddy and arrack, rice was also a source of wine. Liquor was brewed in 'strong-mouthed jars' from both paddy and rice; pounded, germinated paddy was stated to yield 'after two days and two nights a high-flavoured wine'.[83] The flavour of wine was enhanced by burying it underground after it had been filled in the hollows of stout bamboo stems.[69] Thoppi was home-brewed rice liquor,[26] and wealthier folk fermented rice in the presence of fragrant flowers such as the dhātaki (*Woodfordia fruticosa*).[72]

In medical terms, rice was the classic 'sweet' food and generally a 'heavy' one;[34] only varieties of short-duration rice and red rice were classed as 'light'.[325] Rice strengthens all the three dōshas (q.v.) and is considered cooling, diuretic and strengthening.[34] Only diabetics and those with stomach ulcers are advised to reduce their consumption of rice. In relation to the Indian cooking ethos, rice is the prime example of a plough-raised food, anna or krista-pachya.[23] When cooked in a ritual cooking pot,

the sthali, in the sanctum of the kitchen, it yields an everyday kaccha food (q.v.) which can be eaten in the same area only by the family.[23] When observing a fast, or when under a vow, rice will frequently be given up in favour of wild or uncultivated food items. Rice plays a part in most domestic rituals. At an orthodox Kanyakubja wedding, white rice is offered to the silvery moon.[22] At every wedding, rice will be sprinkled on the couple as a symbol of good fortune and fertility. A mixture of rice, turmeric and vermilion, termed akshata, is specially auspicious. At an annaprasanna ceremony, feeding a child rice and milk is believed to enhance its future glory. There are festivals associated with the sowing, transplanting and harvesting of rice.[346] The Pongal festival of Tamil Nadu (*see* pongal), the Onam festival of Kerala and the Huthri of Kodagu are all harvest festivals that centre on rice. The *Jātaka* tales have references to the payment of rice as wages to both agricultural and domestic labourers, and as tax by farmers to the king.[346]

ridge gourd Probably native to India is the Sanskrit koshataki, first mentioned in the *Arthashāstra* and now called (kāli-) thorai and pīrankāi. *Luffa acutangla* is a strongly ribbed, green, tender vegetable, which when dried yields a fibrous skin brush. An even larger sponge brush is derived from *L.aegyptiaca*, the (ghia-) thorai or dilpasand.

roasting Roasting meat on spits is an ancient Indian practice. The Vedic sacrifices detailed in the *Sūtras* employed, among a host of other utensils (q.v.), shūlas or roasting spits in the shūlagava rites.[65] The 162nd hymn of the *Rigveda* describes in detail the ritual steps to be followed in sacrificing a horse, in roasting it whole, and finally in serving and distributing the roasted animal (*see* ashvamēdha).[79] The *Mahābhārata* has a graphic depiction of a picnic meal at which young buffalo calves were roasted whole on spits while being basted with ghee.[58] The *Mānasollāsa*[49] written in the twelfth century AD by King Someshwara of the Western Chalukya dynasty gives elaborate directions for roasting a whole pig, after which pieces were carved out and dressed in different ways to get several spicy dishes. Till recent times, royal rulers in Rajasthan continued this tradition (*see* Rajasthan, food of).

Literature in the Tamil language from between the third and sixth centuries, the Sangam period, is full of references to roast meat. Poets talk of 'hot meat, roasted on the points of spits'[57] and in the *Puranānūru* of 'fine large pieces of fat meat roasted on iron spikes'.[83] Here is another poetic description:

> Like drops of rain that fall in the full lake:
> Drips down the fat from the meat served up.[205c]

The verse continues with the line: 'roasted flesh is carved and eaten',

which suggests that large joints, or whole animals, were roasted. Elsewhere we learn that whole roasted animals were valued for their taste.[39]

Grilling on a griddle, as in making a chapāti, also constitutes a form of roasting (*see* griddle; grilling). So does exposure to heat of material kept in a potsherd or a clay vessel, as in baking an auspicious purodāsha cake on a garhyapatya in different shapes (*see* baking).

rock salt One of the five important types of salt (q.v.) in India recognized by medical authorities was saindhava-lavana, meaning salt from Sindh. Such rock salt was probably always obtained by simple open mining from the vast salt ranges in Punjab and the north-western frontiers of the country. A picnic meal mentioned in the *Mahābhārata*[58] describes a dish of buffalo meat 'fried in ghee, seasoned with acids, rock salt and fragrant leaves'. A dish of pork described in the *Mānasollāsa* specifies the use of rock salt for salting the meat.[49] Sushrutha prescribes rock salt as the salt of choice for everyday consumption, since in the medical view it has the best therapeutic effects of any form of salt.[33] Though most salt forms are considered 'heavy' and slightly 'hot' in ayurvedic terms, rock salt is described as 'light' and 'cooling', with a calming effect on all the three dōshas (q.v.). It is reputed to strengthen the eyesight and stimulate the digestion.[34]

Around the time of Independence, rock salt constituted about 9 per cent of the total salt production in the country (*see* salt).

Rome, contacts with The incursion of Alexander in 327 BC brought the Greeks to India from across the land borders, though earlier too there had been some trade contacts with the north-western part of India (*see* Greek contacts). In AD 40, a Greek sailor, Hippalos, came to realize (for the first time for a European), the phenomenon of the monsoon winds to and from India (the word itself being the Arabic mausam), which resulted in fanning the trade that already existed between south India and Europe. The *Periplus Maris Erythraei* or *Circumnavigation of the Erythrean Sea*,[40d] written in the first century AD by a posthumous Greek sailor posted in Alexandria, contained a graphic description from personal knowledge of how India's 'seas ebb and flow with tides of extraordinary strength, which increase both at new and full moon, and for three days after each, but fall intermediately'. The exports described in the *Periplus* were ivory from Dosarene (Orissa), muslin from Maisolia (Macchilipatnam), pearls from Korkai in the Pandyan kingdom, and pepper from Muziris, the port in the Chera kingdom.[222] The other items exported were perfumes, herbs, sesame oil,[61] coconut oil and butyron (probably ghee) packed in leather skins (to be used by wealthy people in Europe for cooking and sacrifices),[101] gold from

Rome, contacts with

Kongunadu, sandalwood and betel from the west coast,[61] spikenard grass (*see* ginger grass) from the Ganges, diamonds, rubies, coral and tortoise shell, aghil (a black aromatic wood) and salt.[135] The cloth exported was particularly fine, being described in Tamil literature as 'webs of woven wind', 'sloughs of serpents', 'vapours from milk', and 'silk in the web'.[135] This trade was with Greece and Rome, and the term yavana (q.v.) was applied to people of both countries in Tamil literature written in the first few centuries of the Christian era. They were described as people of 'fine physique and strange speech', whose 'well-built ships rode the waves of foaming rivers', loaded (among other things) with 'different kinds of grain, white salt, sweetened tamarind and salted fish'. This description is contained in the *Mathuraikkānchi*,[72] while the *Pattinapālai* talks of 'well-weighed goods in abundance being exported with the Tiger mark (of the then ruling dynasty) impressed on them so as to recover customs duty'.[83]

Against these exports were imported gold (always an item of insatiable demand in India), brass and lead, topaz, fine horses and Italian wine. Tamil poetry speaks of the kings of the south imbibing 'cool, green and fragrant (Italian) wine, served in golden goblets held by bright-bangled girls'.[83] About fifty years ago was excavated at Arikamedu near Pondicherry (the Pouduke of early Roman writers) a Roman warehouse 50 metres long, with a ramp running from it to what was probably a quay.[35,349] Found in the warehouse in large numbers were two-handled Roman amphorae used for transporting wine; some of these bore the marks of Roman potters, like VIBII, CAMURI and ITTA, which firmly dated the warehouse to the first and second centuries AD. Coins have been found at some thirty places (mostly in south India) of Roman kings of that period — Augustus, Tiberius, Nero and Caligula.[304c] So extensive was this trade, that Pliny complained bitterly of the huge drain of gold, 'so dearly do we pay for our luxury and our women'. It was indeed an important cause of the financial difficulties of the Roman Empire from the reign of Nero onwards.[167d]

After a lull of almost a thousand years, Italians started to visit India again. John of Monte Corvino, who was afterwards appointed by the Pope as Archbishop of Peking, came overland by way of Iran in AD 1292, and spent thirteen months here.[29c] He described south India as a land of 'perpetual summer', noted ginger with its enormous roots, cinnamon bark from a tree that resembled the laurel, and the 'wonderful Indian nuts', obviously coconuts, growing on trees that resembled date palms. The people of India were scrupulously clean, consumed milk and rice, ate no meat and drank no wine. Marco Polo (AD 1294) noted that the best quality of ginger came from

Kollam; both cinnamon and ginger grew in the Pandya country, while Bengala produced spikenard (q.v.), ginger and sugar.[8Ah] Odoric of Pordenone, a Franciscan friar, was in Surat around AD 1325, after which he sailed round south India to China.[29c] He described the fire worship of the Parsis, the veneration of the ox by the brahmins, the pepper plant (which resembled a vine in its growth and its clusters of fruit, and the ivy in its leaves), the ginger of Kollam, and the preparation of sago from palms in Borneo. Another traveller, Giovanni di Marignolli, on his return from China overland with two others, all sent by the Pope, spent sixteen months in Kollam 'where all the pepper in the world grows'. He described its growth in gardens, and the steps involved in its ripening and gathering, 'struck down with staves and collected on linen cloth spread out beneath'.[166]

The next few Italian visitors had Vijayanagar, then in the heydey of its glory, as their objective. Nicolo dei Conti, a Venetian merchant, came with his wife and children, and noted that it was a great city, with a circumference of sixty miles and walls that carried up to the mountains.[8Bo] Ludovico di Varthema, who was in Vijayanagar from AD 1505–8, took a sole, ten-year copyright from the Pope before he left home for an account of his travels, well aware of the blatant plagiarism of earlier writers.[29a] He noted the abundance of produce in Kananoor, and observed that while brahmins could not eat animal food without losing caste, the Nair or landed gentry was permitted venison, goats, fruits and fish. All other castes ate any kind of meat, even mice, but not beef, and all classes were very fond of chewing betel leaves. He described the ritual of a meal eaten by the Zamorin (ruler) of Calicut; the food was first offered to the idol 'for a sufficient time to satisfy its spiritual hunger', and after the ruler had eaten, the remnants of the meal were given to black crows. Varthema described a number of fruits: the sweet orange, three varieties of banana (long, short-and-sweet, and bitter), and the jackfruit, the taste of which intrigued him[21c] (*see* jackfruit). So small and delicate were the scales and weights in use that even a hair would turn them. Buying and selling prices were negotiated under cover of a cloth, using finger pressures alternately by both parties. The practice continues to this day at oilseed auctions. Of Vijayanagar itself he wrote: 'There are immense parks for hunting and fowling, with the best of air, great fertility, wealth of merchandise, and abundance of all possible delicacies, a second paradise.'[29c] And of Kozhikode: 'The orderly nature of the town and people and the manner in which justice was strictly administered, was most admirable.'[29b]

roselle *Hibiscus sabdariffa*, red roselle or lāl-ambādi, is a beautiful plant with shining green leaves and

stems which set off the glossy red calyces. These are used as a souring agent in curries, as a thickening material in jellies, and as the source of a pleasant, red, acid beverage. It seems to have been domesticated as early as in 4000 BC in western Sudan.[7a] Later two varieties evolved, one a bushy shrub for the purpose of eating, termed var. *sabdariffa*, and the other, var. *altissima*, a five-metre tall, unbranched shrub for use as a source of fibre.

A related species is *Hibiscus cannabinus*, called nalida, ambādi and gonkuru in India, and mesta and kenaf elsewhere. It appears to have originated in Angola, Ethiopia or Sudan,[7a,32c] though its fibre is given such names as Deccan Hemp and Bimli Jute. The leaves are used in the Andhra region to make the popular sour gonkuru chutney.

A third species, *Hibiscus mutabilis*, is referred to as sthali-kamalini or the lotus-that-grows-on-land in a ninth-century Sanskrit work from Kashmir,[297] which compares the flowers to a woman's red lips and the red-painted soles of her feet. It is commonly called the Chinese rose or cotton rose.[99r]

rōti The generic Indian name for baked, grilled or roasted products mostly based on wheat flour, but also applied to such products derived from rice, jowār, bājra, maize and so on. The word rōti resembles the word karōti mentioned in the medieval *Rāmcharitamanas* (*c.* AD 1600) of Tulsidas, while the sixteenth-century *Bhavaprakāsa*, a medical text written by Bharata-mishra has the Sanskritized rōtika,[349A] so the word rōti may only be of recent colloquial origin.

Some unusual kinds of rōtis made from wheat which are described in Kannada literature of between the tenth and eighteenth centuries AD[67a,67b,261] are of historic interest. The methods of roasting were themselves quite unusual. Baking between plates, with glowing embers both below and above, gave the mucchala-rōti, while the kivichu-rōti was roasted on a thavā (called kavali in Kannada) with a little ghee. Several thavā-roasted rōtis could be stacked one over the other using a stick to pierce them, and these were flavoured with ghee, sugar, edible camphor and palmyra (thālē) flowers to yield the chucchu-rōti. A stack of ghee-smeared circles mounted one over the other, sāvudu-rōti, was baked under cover of a cup. A cup cover above, live coals below and a ball of dough within, yielded uduru-rōti, from which the blackened crust was peeled off before consumption. Mandigē or mandagē was a delicate baked product; when baked on a heated tile (called kenchu) it was termed white-mandigē; when overheated and still very hot it was ushnavarta-mandigē, which when exposed to air became vayuputta-mandigē. The stuffing could be varied; sugar and ghee yielded khanda-mandigē, and multi-layered

fillings of cooked chana, coconut shreds, dates and raisins yielded a mandigē version called pēranē-hurigē. Other hurigēs, purigēs and hōligēs of the Karnataka area are described elsewhere (*see* pōli). The mandigē or mande made today in Belgaum is a very large and fine parāta stuffed with finely ground sugar containing cardamom powder, baked on a large upturned clay pot, and folded when hot and flexible into a rectangle that hardens as it cools. Yet another sweet-stuffed wheat rōti is made by placing, in a ball casing of wheat dough, a mixture of broken-up mandigē pieces with milk, cream, coconut milk, mango juice and sugar; the ball is baked on a hot tile within a seal of dough (a process termed kanika in Kannada), and when done, the upper crust is sliced off and ghee and sugar added before eating the delicacy, called bhōjanandika-rōti. Wheat dough made with sweetened milk or cream, rolled out in circles and deep-fried, yielded the yeriappa and babara.[67a,67b,261]

Wheat-based rōtis in current Indian cuisines fall into three categories. First are the kinds dry-roasted on thavās, then come those either pan-fried using a little fat, or deep-fried in a kadhāi. Finally there are products which are leavened and baked in ovens and tandoors. Dry-roasted forms of rōti include the common chapāti, roasted dry on a hot thavā (griddle), and sometimes puffed out to a phulka by brief contact with live coals.[231] A very thin chapāti of Gujarat is the rōtlee. The rumāli (literally scarf) is also thin; it is pressed out with the fingers and tossed, never rolled, till it achieves an enormous size, after which it is roasted on a large upturned thavā, and then folded over many times to a manageable size. Also thavā-roasted are the round, slightly flattened phefras of Rajasthan which again are placed briefly on live coals and eaten with ghee. The bhatia of the same state is a popular peasant food, and dō-patris, also of Rajasthan, are soft, thin rōtis that come apart as two circles because of the style of rolling the dough. Dough that contains spinach yields distinctive rōtis; the missi-rōti, roasted dry on a thavā and flaky in texture, has, besides spinach, green chillies and onions in the dough. The khākras of Gujarat are kneaded with milk and water, and are very thin, brittle products that keep well and are carried by Gujarathi travellers. Rajasthan has the unusual ball-like bātti, roasted dry in an oven and then on live coals; it is broken open and doused in ghee before consumption. Bāfflas are cooked in a soup of masoor dhāl and then roasted.[231]

Wheat products, after being rolled out, can be either pan-fried using just a little fat, or deep-fried.[231] Parātas are the commonest form of the first kind, often rolled out square or triangular in shape rather than round. The dough can be mixed with seasoned vegetables like potatoes,

cauliflower, spinach or mēthi. Or a stuffing of vegetables or chopped eggs may be placed on the parāta which is then folded over and lightly fried. Both types are frequently eaten with curds. A stuffing of bēsan gives birahi, with an unusual taste and texture. Deep-fried products are exemplified by round, swollen pūris, and the tiny, almost globular gōle-gappas which are a delectable relish when eaten with a fiery pepper-water liquid. The lucchis of Bengal are larger and thicker and not as fully puffed as pūris, since some fat is kneaded into the dough. They can also be stuffed, for example with a mash of cooked urad dhāl placed at the centre of the ball of dough before it is rolled out. The dough of the bhathūra is allowed to ferment using yoghurt, and then rolled out to give a layery fried product. The khjūru or khajūr is made with added sugar and poppy seeds, and deep-fried to crispness, resembling in effect fried slabs of a western bread loaf.[231]

The third class of wheat products is those which are leavened and baked, either in closed and heated ovens, or in Indian-style tandoors, which are open, lined, glowing ovens with live coals placed at the bottom.[231] Naan is made of maida (q.v.), the white inner flour of wheat, which is leavened before baking to yield a thick elastic product, sometimes sprinkled with tiny black kalonji (nigella) seeds. Use of more ghee in the batter gives the even more elastic kulcha, which is also sometimes stuffed; use of milk in the dough yields the sweetish and more powdery sheermal, rather like a round, flat bun. Both are eaten in Hyderabad, Amritsar and Kashmir, which also has the chewy girda, the sesame-encrusted tschvaru and the soft bākirkhani, all eaten for breakfast with tea.[269] Enriched with butter, and crisp, is the khasta, a word also used to designate a type of parāta. Naan itself can be dressed in various ways. It can be brushed with saffron water to yield a red surface colour after baking. Or it can be coated with a tomato and garlic paste, or with a sweet mash of dates previously cooked in jaggery. Almonds, or crumbs of paneer, can also be kneaded into the naan dough.[231]

Western-style oven baking has yielded leavened breads that are unique to this country. Ordinary loaf bread is called double-rōti in India, since it was made in jointed sections. Pāo is a Portuguese contribution, rather like an elastic bun, which is baked as four sections that can be broken apart. The gutli is a very hard, round or rectangular well-risen roll with a brown crust, and the crusty peti-pāo (literally box-bread) looks like an ancient treasure chest. There is a large commercial naan which is vended after it is cut into wedges. In fact all these oven-baked items are sold on the street for consumption as on-the-spot snacks, with vegetables (bhāji), boiled eggs, minced meat or chicken as an accompaniment[231] (*see* also pōli).

S

sacrifice Sacrifice was a basic component of Vedic life, which gave way in later Hinduism to the pūja. Kings and chieftains performed the great sacrifices described in the *Rigveda*, which involved the use of soma juice (q.v.), like the rājasuya at the start of a reign or the asvamēdha (q.v.) towards its end, or the ajamēdha at intervals. These were expensive and elaborate rites which could even spread over a year or more. The ordinary householder was expected to perform five sacrifices daily.[167e] These were the worship of the world spirit, Brahman, by recitation of the *Vedas*; of the ancestors, by libations of water and periodical shrāddhas; of the gods, by libations of ghee; of living things, by scattering grain for their consumption; and of fellow-men, through hospitality. These did not involve animal sacrifice, but the latter was sometimes carried out to appease the gods and spirits on special occasions, such as at a funeral, at harvest time, when building a house, before felling a tree, and so on.

In relation to food, the purpose of animal sacrifice was to sanctify the meat and render it suitable for later consumption. The *Vedas* describe fifty animals as fit for sacrifice and by implication for consumption. The elaborate aja-panchāndam rite of the *Rigveda* describes the sacrifice of a male goat (*see* ajamēdha), and its 162nd hymn details the ritual for the sacrifice of a horse (*see* ashvamēdha). Various gods were propitiated with specific animals, like a dwarf ox for Vishnu or a red cow for Rudra.[78] The *Yajurveda* is no more than a compilation of mantras or prayers to be recited by a priest at various sacrifices. The *Brāhmanās* relate the ritual to the sacred text, and the *Āranyakas* explain the symbolism of the sacrifice. Thus the *Brhad Upanishad* explains:[167f] 'Dawn is the head of the sacrificial horse, the sun its eye, the wind its breath, fire its mouth ... and sound its voice.' Domestic rituals are delineated in the *Sūtras;* thus the sacrifice of a cow at a cremation is described in the *Ashvalāyana Sūtra*, with details of how the various dissected organs are to be placed on the corpse just before its immolation.

Animal sacrifices in rituals were condemned by Buddha and Mahavira, and to strong effect by the Buddhist emperor Ashoka in his far-flung edicts. Ingenious prohibitions on the killing of animals found their way into the *Dharma Sūtra* texts, and eventually Vedic thinkers like Shankara, Madhva and Ramanuja substituted pumpkins, coconuts and animals made of flour in the Vedic animal sacrifices. Only in the Shaivite Kali cults in Bengal, centred on Durga, did animal sacrifice before an icon (though shorn of ritual), and the use of fresh blood, still prevail.

safflower There are no really early archaeological finds of safflower (*Carthamus tinctorius*) in India,

though Egyptian mummies of 1600 BC have been found with long garlands of cloth or papyrus on which were sewn florets of the safflower.[73] Nor are there any early records in India of the use of the dye from the flowers, though a century ago it was a major industry for both internal use and export.[2b''] Mention of the seed as a source of oil occurs in early Buddhist literature, and the *Arthashāstra* (*c.* 300 BC) lists the kusumbha seed as one that was crushed in oilmills (*see* ghani).[49] The Sanskrit name survives as kusuma in south India, though karadi is the more general term.

Two wild plants, *C.lunatus* in Kashmir and *C.oxyacantha* in Pakistan and Uttar Pradesh, may have been the ancestors of the safflower, and two distinct types developed. One was a non-spiny type with orange or yellow flowers tinged scarlet, used as a source of dye. The oily type, with yellow flowers, was grown in areas in the present southern Maharashtra and northern Karnataka, where the seed is an important source of edible oil. At the time of Independence, however, the safflower did not figure among the seven major oilseeds in the country.[119f]

saffron *See* kēsar, kēsari-bāth.

sāg *See* green leafy vegetables.

sago Sago granules were for long a product imported from the Indonesian islands, manufactured from starch derived from the stem of the sago palm. Called sabudāna in India, it was used to make food for invalids, translucent milk-based pāyasams (q.v.), beverages like falooda (q.v.) and the like. A Kannada work of AD 1025[67b] describes one dessert as a 'pearl-like padaligē'; this could well refer to a sago pāyasam, which was certainly popular in the area in later times.

Tapioca starch, abundant in south India, was found suitable for granulation to sago, and at Independence, about ṣ000 tonnes of the product were being manufactured annually, mostly in the Salem district of the Tamil country.[119f]

salt Certain pottery moulds with convolutions on the inside found in the Indus Valley were probably salt moulds of a kind still in use in India.[353] Salt is not mentioned in the *Rigveda*, but occurs frequently thereafter. Strabo of Amnesia (65 BC–*c.* AD 25) in his *Geography* mentions salt as a product of the country of King Sopithes (Saubhutu).[18d] Five of the more important types of salt are first mentioned in the Buddhist *Vinaya Pitaka*,[6c] and later by Charaka.[6f] These are rock salt (saindhava), sea salt (samudra), black salt (vīda), earth salt (pansuja or ushāsuta) and audvida (efflorescence salts). Sushrutha has nine others, but these are mostly other mineral salts of both sodium and potassium. Kautilya in the *Arthashāstra* also refers to saindhava, 'salt from the Sindhu country'.[49]

Salt quickly assumed ritual significance. In the *Sūtra* literature its use is forbidden to students, to widows

and to newly married couples for the first three days. Black or vīda salt was interdicted at an ancestral shrāddha ceremony. In certain types of fasts, ordinary sea salt has to be replaced by rock salt. Certain dishes in historic literature note specific salts, such as rock salt for a dish of meat in the *Mahābhārata*,[58] and for a pork dish in the *Mānasollāsa*.[49] An amusing sidelight is given by Niccolao Manucci:[55] chewing a betel quid for the first time in India as a very young man, his head swam and he fell down: a little salt placed on his tongue brought him to his senses.

In medical terms, salt in general is considered heavy, hot and pungent, moistening, emetic, salivatory and peristaltic.[34] Salt stimulates pitta and kapha, and reduces vata (*see* dōsha). Sea salt is heavy and not heating, and does not cause a burning sensation on consumption. Rock salt has a superior therapeutic effect, calming all three dōshas. Other forms of mineral salts, like vīda, increase appetite to an exceptional degree and so are of value in digestive disorders and all vata diseases.[34]

The production of sea salt is described in historical literature. Sea water was evaporated in long, shallow beds and the salt simply raked off. In Kautilya's *Arthashāstra*,[16] the lavanadhyāksha (Superintendent of Salt) scrutinized salt manufacturing practices and regulated trade, using a system of licenses for which either a fixed fee was paid, or a share of the output retained.[354] The Superintendent also sold salt that was received by the government, which was one-sixth of the produce, as its share; profit was ensured right at source by the 5 per cent difference between the king's balance, the ayamani, and the public balance, and by further differences between buying and selling prices.[16] Salt was an expensive commodity, inviting no less than six taxes, four paid by the seller and two by the buyer.[16]

Early south Indian literature has frequent references to the activities of salt producers and vendors. Five names for salt beds are recorded, namely nannugupalam, alkkar, uvarkkalam, uvalagam and kazhi.[69] The places where salt was manufactured were Markanam, Kanyakumari, Variyur, Aythurai and Bapatla.[69] Poets describe 'white salt manufactured in clayey beds' and 'hearths of stones left by salt vendors'.[83, 101] Salt was widely vended slung in two bags across the backs of oxen,[101] or by 'salt sellers who enter villages crying out the price of salt',[83] or by entire families creaking along in carts called vandichattu.[39] The *Pattinapālai* notes that, as a pastime, young girls kept count of the numbers of such carts that passed along the highway. Salt was a principal measure of value, and could be bartered to advantage. Sea salt was of course used in cooking, and for salting and preserving fish and meat.

During the colonial period, salt

production from saline incrustations in the Bengal area first attracted British attention, but after numerous attempts at organization, was finally abandoned as uneconomic.[119j] Alongside, control was slowly gained over the production of sea salt in Gujarat, Bombay and Madras, of lake salt in Orissa and Rajasthan, and of rock salt in Punjab and the north-west. The quality of salt produced was also greatly improved and the prices were lowered. Mahatma Gandhi in 1930 led a salt march to the seashore at Dandi to protest against the payment of excise duty for salt manufacture, which was resolved by the Gandhi-Irwin pact of 1931 which permitted salt manufacture to anyone, provided the salt was not sold. At Independence, of the 21,000 tonnes of salt annually produced, 15 per cent was lake salt, 9 per cent rock salt and the rest sea salt.[119j]

sāmbhār A fairly thick spicy extract of thuvar dhāl soured with tamarind, frequently containing soft vegetables like the brinjal, drumstick, gourd and lady's finger. It is served in south India with rice as a middle course, after a course of rice with rasam (q.v.), and before a course of rice with curds. Sāmbhār is also eaten as an accompaniment to the idli and vadā. The Kannada term for the dish is huli and the Telugu, pulusu. The Tamil country has a premixed sāmbhār-sādam, convenient for travel, and Karnataka the bisi-bēlē-huli-anna, best eaten with ghee.

samōsa A deep-fried snack, consisting of a crisp, triangular and layery wheat casing filled with spiced meat or vegetables. In about AD 1300 Amir Khusrau describes, among the foods of the Muslim aristocracy in Delhi, the 'samosa, prepared from meat, ghee, onion, etc'.[200] About fifty years later Ibn Battuta calls it samusak, describing it as 'minced meat cooked with almonds, walnuts, pistachios, onions and spices placed inside a thin envelope of wheat and deep fried in ghee'.[53] The *Ain-i-Akbari* lists, among dishes of meat cooked with wheat, the qutab, 'which the people of Hind call the sanbusa'.[28] All these descriptions suggest that the samōsa was not an item brought by these courts from their parent lands, but was an existing indigenous product, perhaps enriched in its stuffing to cater to royal courts.

samovār The spouted copper or silver urn of Central Asia and Europe which is used to brew either an aromatic tea called kāhwāh flavoured with cardamoms and cloves, or a green tea using unfermented leaves.

sandal The heartwood of *Santalum album*, which when dried has an exquisite perfume. In Sanskrit chandana (from which the word sandal is derived) appears to be a generic term covering srikhanda, the true or white sandal, pitachandana, the inferior yellow type, and even raktachandana or red sandal, a different, mildly scented species.[2c"]

Sandalwood was exported to Europe even 2000 years ago.[61] Xuan Zang relates that its powder was used in the Nalanda monastery in the seventh century, to perfume washed hands after a meal.[8Aj] Though the perfume is obtained by steam distillation and widely employed in cosmetics and even in medicine, it is probably not compatible for use in food items. A lone reference is to a sandal-flavoured vermicelli pāyasam which was served as sattvik food to a group of advanced Shiva devotees in Karnataka (*Lingapurāna* of Gurulinga Desika, *c.* 1594).[67b]

sandesh *See* Bengali sweets.

Sangam literature *See* Tamil literature.

sann-hemp *See* hemp.

Sanskrit sources A great deal of the early history of food in India is enshrined in Sanskrit literature, as is evident in numerous entries in this volume. A brief chronological account of the major works would therefore be helpful.

Some caution is called for. Thus while the great Kurukshetra battle of the *Mahābhārata* has been placed from several considerations at 1424 BC,[355] the core of the epic itself was written a thousand years later from oral tradition, and references to food would thus reflect the habits that prevailed not when the event occurred, but at the time of its compilation. An even greater difficulty is with texts like the *Samhitās* of Charaka and Sushrutha, which represent accretions over several centuries to the original works, which makes the dating of a specific food or food item uncertain. Some primary Sanskrit sources in approximately historical order now follow.

Period 1700 BC to 1500 BC

Rigveda: A collection of 1017 hymns plus 11 others, totalling 1028 suktas.[35a] Each is subdivided into 8 ashtakas (octaves) or khandas (sections), and each of these have 8 further divisions called adhyāyas (chapters). Further dissection yields 2006 vargas (classes), 10,417 riks or verses (hence the name) and 153,826 padas (words). Another division yields 10 mandalas (circles or classes) and 8 anuvakas (sections). Of the 10 mandalas, numbers 2 to 7 are attributed to single families,[12] and are probably the oldest nucleus.[165] Mandala 9, which contains the famous soma (q.v.) hymns, was probably introduced into the collection later.

Period 1500 BC to 800 BC

Sāmaveda: A song book with 1547 stanzas, all but 75 of which also occur in the *Rigveda.*

Yajurveda: A prayer book of mantras for a priest to recite at sacrifices. There are two texts, the black and the white. The latter is attributed to the sage Yagnavalkya Vajasaneya, and consists of 40 chapters, of which 15 are of a later date than the rest.

Atharvaveda: This is in two recensions or samhitās. It consists of 20 books containing 731 hymns, many drawn from the *Rigveda.*

These hymns consist of charms and spells against maladies, accompanied by the use of herbs and dietary injunctions. The hymns are attributed to the first physician, Dhanvantari.[17Ab]

Brāhmanās and Āranyakas: These are books of prayer designed to relate the ritual to the sacred text. Each *Veda* has its own *Brāhmanās*, such as the *Aitareya* and *Kaushika Brāhmanās* of the *Rigveda*, the *Taittirīya Brāhmanā* of the *Yajurveda*, and the *Gōpatha Brāhmanā* of the *Atharvaveda*. At the end of each *Brāhmanā* is placed the *Āranyakas* or forest books, explaining the symbolism of the sacrifices.

Upanishads: These are philosophical writings attached to the *Vedas*, and the source of Vedanta philosophy. The *Rigveda* has the *Aitareya* and *Kaushītaki Upanishads*, and the white *Yajurveda* has the *Brhadāranyaka* and *Īsha Upanishads*. The authorship of the *Upanishads* is obviously very diverse.[355]

Period 800 BC to 350 BC

Sūtras: These consist of 8 vedāngas or manuals of instruction in phonetics, grammar, metrics, astronomy, astrology and ritual (kalpasūtra).

Purānas: Eighteen later non-religious works which record ancient Aryan ruling dynasties. Parts of these are thought to be very old, while others came much later.

Pāninīyam: The great grammar of Panini, which has been described as a 'natural history of the Sanskrit language'.[356a]

Nighantu: A treatise on medicine by a later Dhanvantari,[17b] perhaps a ruler of Varanasi.[103e]

Buddhist canon: These consist of three *Pitakas* written in Pali, a provincial dialect of Sanskrit, and are termed *Vinaya*, *Sutta* and *Abhidamma*. Also of value are the *Dhammapadas*, 423 verses expounding Buddhist ethics, and the *Jātakas*, consisting of some 500 tales relating to the previous births of the Buddha which contain information on the social customs of the time.[126]

Period 350 BC to AD 200

Arthashāstra: A manual of statecraft by Kautilya who was also called Chanakya. He lived around 300 BC in the court of Chandragupta Maurya.[16.74]

Mahābhāshya: A commentary by Patanjali (written around 200 BC) on the grammar of Panini, defending it against the criticisms of Katyayana.

Rāmāyana: One of the great epics, originally written by Valmiki in about 400 BC, with later accretions over many centuries.

Mahābhārata: The other great epic. It consists of 18 parvas (books), being accretions over several centuries on the original tale of Vyasa (written around 400 BC).

Manusmriti: The Institutes or Codes of Manu, in Sanskrit *Mānava Dharmashāstra*, a digest in 2685 verses of the creeds and laws of behaviour of various social classes current at the time (around 200 BC).

Period AD 100 to AD 800

Charaka Samhitā: The original work of perhaps the fifth century BC has been much amended subsequently. The *Charaka Samhitā* consists of 120 chapters, with great emphasis on the fundamentals of ayurveda, the science of life. The effects of various foods are described in rela-tion to their physiological impact, the temperament of the eater, the way of cooking the food items, and the seasons, based on actual obser-vation. As many as 341 medicinal plants, 177 drugs of animal origin and 64 drugs of mineral origin are so described.[24]

Sushrutha Samhitā: A work that was originally composed about a century after Charaka by Sushrutha, but is available for use in the recension of Nagarjuna of about the third/fourth century AD, with further information in Kalhana's commentary of AD 1100. The emphasis is on surgery, but dietary injunctions for health are included.[33]

Ashtāngahrdayasamhitā: Written by Vaghbhata (mid-seventh century AD), this is a concise synthesis of the two earlier medical *Samhitās*.[77]

Mānasollāsa: Meaning refresher of the mind, this work was written in about AD 1130 by King Someshwara of the Western Chalukyan dynasty based in Kalyana, about 160 km west of modern Hyderabad. Its 100 chapters are divided into 5 books, of which the third describes the pleasures to be enjoyed by royalty. One of the chapters, entitled Anna-bhōga, contains a large number of concise recipes for both meat and vegetarian dishes.[49]

Shivatattvaratnākara: An encyclopaedic work covering the whole range of human knowledge, combined with personal information. It was written by King Basavaraja, who from AD 1696 to 1714 ruled the kingdom of Keladi that stretched along the coast from Goa to Kannur. The chapter entitled Society and Amusements deals with the royal kitchen, the preparation and serving of food items, meal accompaniments, drinking water and the like.[51]

Sanskrit words Most current Hindi words in the area of food (as of course in other spheres) are obviously derived from Sanskrit, and a classified list of these follows. It seemed convenient to place first the common Hindi term, next the Sanskrit word and finally the English usage. (*See also* individual entries.)

Cereals: cheena, cheenaka, amaranthus § jowār, jurna, sorghum § rāgi, rāgā, finger millet § rājgeera, rājgeera, amaranthus § shama, shyāmaka, panicum.

Pulses: arhar, adhaki, *and* thuvar, thuvarika, *both* pigeon pea § chana, chanaka, chickpea § kesari, vetch § kulthi, kulattha, horsegram § masoor, masūra, lentil § mung, mudga, greengram § sem, shimbi, hyacinth bean.

Oilseeds: alsi, athasi, linseed § kusum, kusumbha, safflower § til, tila, sesame § sarson, sarshapa mustard.

Tubers, etc: ālu, āluka, tuber (potato)

§ gājar, garjara, carrot § manakanda, manaka, alocasia § mūli, mūlaka, radish § piyāz, palandu, onion § shakarkand, madhvāluka, sweet potato § sūrana, sūran, elephant yam.

Fruits: akrot, akshota, walnut § ām, āmra, mango § āmla, āmlaka, Indian gooseberry § bael, bilva, Bengal quince § bēr, badari, jujube § drāksha, drākshaka, grape § jāmbu, jāmbu, roseapple § jamoon, jāmbula, Java plum § tarbūz, kalinda, water-melon § kamrakh, kāmaranga, star fruit § panas (kathal), panasa, jackfruit § kēla, kadali, banana § kharbuza, kharbuza(?), musk melon § pēthā, kushmanda, ash gourd § mahua, madhuka, mowrah § nārangi, nāgaranga, Seville orange § nimbu, nimbaka (numbaka), lime.

Vegetables: baingan, vrntaka, brinjal § bhendi, bhinadaka / bhandi(?), lady's finger § karēla, karavella, bitter gourd § chachinga, chachinda, snake gourd § khīra, chirbhita, cucumber § parwal, putulika, pointed gourd § sājuna (shaonjana), shaubanjana (singru), drumstick.

Leafy and aquatic materials: bathua, vasthuka, pigweed § kamal, kamal, lotus (water-lily) § padma, padma, lotus § pālak, pālankya, spinach § pat, pathua, jute § singhāda, singhātaka, water chestnut.

Nuts: bādām, vātāma, almond § nāriyal, nārikēla, coconut.

Spices: adrak, ardhraka, green ginger § dālchīni, dārugandha, cinnamon § elaichi, ela, cardamom § haldi, haridra, turmeric § imli, amlika, tamarind § jaiphal, jatriphal, nutmeg § jātri, jātri, mace § jeera, jeerika, cumin § kēsar, kēsara, saffron § lassan, lāsuna, garlic § lavang, lavanga, clove § mēthi, mēthika, fenugreek § mirchi, maricha, pepper (round) § paan, pārna, betel leaf § sunti, srngavera, dry ginger § tambul, thāmbūla, betel leaf § tejpat, tvak, Indian cassia.

Flavourants: gur, guda, jaggery § karpūr, karpūra, camphor § khandsāri, khānd, candy sugar § shakkar, sharkara, sugar.

Utensils: chakki, chakra, grinding stone § chūlāh, chulli, stove § ghani, gravan (ghatani), oilpress § kadhāi, kataha, deep frying pan § kolhu, ulūkhala, oilpress § pātra, pātra, vessel § shurpa, shurpa, winnowing tray § shūla, shūla, spit § thāli, sthāli, metal dinner plate.

Prepared foods: afin, ahiphena, opium § chatni, chatani, chutney § chidva, chipita, parched rice § khichdi, krsara, rice-pulse dish § muri (murmura), missita, puffed rice § panch, pancha, punch § sattu, saktu, grits of parched cereals § shirka, shirko, vinegar § sura, sura, distilled liquor § tāli, tāri, toddy.

sapōta The sweet, brown globular fruit of *Manilkara achras*, called sapodilla in its native Mexico and Central America.[7a] The exudate from the bark was called chicle, from which came cheeku, the other name in India for the sapōta fruit. This latex was used as a chewing gum, both in its place of origin and later commercially in Europe, but has today been replaced by synthetic resins. The species was brought either from Mozambique to Goa,[282]

or from the Philippines to Malaysia and thence to our east coast. Today it thrives best in southern and western India, and very large-fruited varieties have been developed.

sarson In the group of *Brassica* seeds now internationally termed rape-mustard, the main variety in India is the dark-red seed rāi, *Brassica juncea* subsp. *juncea* (*see* mustard). Next in order is brown sarson, *B. napus* var. glauca, and lastly there is toria, *B. napus* var. napus. A minor crop is yellow sarson. Brown sarson is thought to have arisen a very long time ago in the northwest of India as a subspecies of the very ancient *B. campestris*. Simple human selections from this yielded toria on the one hand, and yellow sarson on the other. Brown sarson is termed sarshapa in Sanskrit, and the word is supposed to be of pre-Sanskritic Munda origin. Yellow sarson is termed siddhārtha in Sanskrit, and as early as in 1000–800 BC was clearly distinguished from both rāi (rājika) and sarson (sarshapa).[316]

The seeds of rāi are preferred as a condiment. In crushing seeds for oil, it has long been the practice to crush mixtures of rāi, sarson and toria, with the greater proportion being rāi; this is done to achieve an optimum in terms of oil yield, flavour and taste. This oil was called sarson-ka-tel in India, and alluded to as mustard oil in English.

The leaves of all three species are cooked in north India to a popular spicy mash called sarson-ka-sāg, eaten with fresh butter as an accompaniment to rōtis of makki (maize). This leafy mash is first mentioned as long ago as in the *Acarānga Sūtra* (*c.* 500 BC), and again much later in the *Charaka Samhitā*.[316] The *Ashtāngahrdayasamhitā* written by Vaghbhata[77] does not rate these leaves very highly as food. Sushrutha describes how in Suhma country (Bengal), the tender leaves were boiled, the water squeezed out, and jeera and rāi seed added before shaping the mass into a delicacy called sindhaki.[6f]

sattu From the Sanskrit saktu, which originally meant the coarse flour obtained by grinding parched barley and later parched rice. These were then made into balls for chewing, or a paste for licking. Sattu is now applied to the coarse flour of any parched grain, including pulses. The *Varunaka Samuchaya*[136] written in Gujarat in the sixteenth century speaks of laddus made from sattu, and a century ago Grierson[285] records in Bihar a sattu of chana flour, boiled to yield a dish called pittha. The parallel term dalia refers to coarser grits or brokens of various grains.

sattvik One of the three types of guna or inherent temperament, the other two being rajasic (q.v.) and tamasic (q.v.). Sattva means essence, and represents serenity and refinement. A sattvik nature is best served by foods that do not disturb the body elements and conduce to serenity and spirituality. Examples are milk and its products, jaggery, honey,

fruits, deer meat, rainwater and the like. The list of foods with 'soul qualities' enumerated by the Buddha (*see* Buddhist food and literature) represents a range of sattvik food materials. Lord Vishnu, the preserver, exemplifies the sattvik temperament.

saunf Native to the Mediterranean, *Foeniculum vulgare* or fennel has been widely grown in India from early times. It is used as a food flavourant, for example, in a Bengali dish of urad dhāl, or in the muthiyas of Gujarat, or in the spicing of food made by Hindus in Kashmir (q.v.). Saunf water is a home remedy for stomach upsets, and the yellow-green seeds are commonly offered as a digestive after a heavy meal.

seafood Though prawns, shrimp, crab and other food from the sea and river must certainly have been in use all through history, references to seafood in literature are scanty. Manucci[55] in the seventeenth century AD makes a suggestive remark: 'As for shell-fish, they are classed among the most impure of things, and are not used except by the pariahs.' Early Tamil literature talks of prawns caught by Meenavar, the fishing community,[101] and elsewhere of 'white rice served with curried crabs and vegetables'.[83] Fried crabs are noted in the *Mānasollāsa* written by King Someshwara.[45] Like the flesh of other creatures living near or in water, namely in anupana terrain, these foods are considered sweet, fat and heavy, and help to reduce the digestive fire and regulate kapha (q.v.) (*see* meat consumption, rasa).[34]

seasons and months In the *Arthashāstra*[16] three seasons were noted. Rice was raised in the rainy season and harvested at the onset of winter. Pulses, lentils and peas were harvested in spring, and barley, wheat, linseed and hemp (cannabinus) were all sown in winter and reaped early in the following summer. Eventually finer gradations were made into six seasons (rtu), each of two months duration;[14c] these were vasantha (spring, March–May), grishma (summer, May–July), varsha (the rains, July–September), sharad (autumn, September–November), hemantha (winter, November–January) and shishira (cold season, January–March).[167g]

The year itself had twelve months.[167g] Starting from mid-March to mid-April, which was Chaitra, there followed Vaishakha, Jyaistha, Ashada, Shravana, Bhadrapada, Ashvina, Karthika, Margashirsa (or Agrahayana), Paus, Magha and Phalguna (from mid-February to mid-March).

sēm The hyacinth bean, *Lablab purpureus* (Sanskrit shimbi, Tamil avarai, Gujarathi valpāpdi), is thought to be indigenous to India, though wild forms have never been identified.[2d''] It is a particularly popular vegetable in Karnataka, the Tamil country and Gujarat.

sesame *Seed:* There is now fairly conclusive evidence that the sesame,

rightly called *Sesamum indicum*, is indeed of Indian origin, its progenitor being the wild Indian species, *S.orientale* var. malabaricum which still exists all over the country.[358] This was probably the wild sesame, or jartila, first mentioned in the *Taittirīya Samhitā* as an uncultivated grain permitted to ascetics.[6a] It is also listed in the twelve-volume *Hortus Malabaricus*, which was compiled in Kerala between AD 1680 and 1700 by the Dutch governor Heinrich van Rheede, with 794 plates sketched for him by an artist from Kochi.[8Cb]

Both archaeological and literary evidence support the antiquity of the sesame in India. A 'charred lump of sesame' was found in *c.* 2000 BC layers in Harappa, along with burnt grains of wheat and peas.[164] Though tila is not mentioned in the *Rigveda*, the word pāla does occur, which in later writings was employed in compound forms to denote sesame products;[358] for example pālala denoted a confection of sesame seeds and jaggery. From the *Atharvaveda* onwards, tila finds abundant mention in both secular and religious contexts. In the Vedic sacrificial rites, a special snake-shaped board, an arm in length, called akaraphalika, is specified for offerings of sesame seed.[65] It is one of nine sacred grains, navadhānya, that have a special place in rituals. At a wedding ceremony, young girls carry the nine sacred grains in trays around the fire. The *Mahābhārata* says: 'The gift of sesame is a very superior one; it produces everlasting merit.'[195c] Sesame seeds find a place in every major life event. It has an important function in the naming ceremony of an infant, in the annaprasanna or weaning ceremony, in the tonsure ritual and in the initiation ceremony of a student.[190b] At the sacred thread ceremony, sesame seeds are scattered in the four corners of a room to ward off evil spirits.[194b] Ekādashi are fast days observed every fortnight by followers of Vishnu; during one of them, sesame seeds and oil are used in several ways: in bath water, for anointing, in the drinking water, as alms, and during the sacrifice.[195d] The seeds are used in several rites connected with death and cremation; after everything is over, the relatives are given balls of sesame seeds, boiled rice and jaggery, called tillanna.[358] At the ancestral shrāddha (q.v.) ceremonies, sesame seeds in the form of pindas (balls) are offered as pitr-tārpana to the manes or pitr.[358]

While edible items that contain sesame have a ritual significance, there were of course numerous other items with sesame seeds eaten simply for pleasure. A Vedic dish of rice, sesame seed and milk was called krasara,[6a] and in south India, in early times, a dish of rice, sesame seed and sugar was termed chitrannam,[347b] perhaps from its speckled appearance. Rice cooked with sesame seed was tilaudana; it could also be cooked with vegetables, besides being roasted, pounded and

fashioned into crisp pārpatas (pāpads).[6a] A flour of roasted sesame seed (or of the oilcake), when mixed with rice flour and jaggery, yielded the shāskuli. This was an item permitted to Buddhist monks, which on one occasion was denied to one of them since he had committed a transgression.[6c] An unusual dish of dressed curds called kambalika is described by Sushrutha; curds were acidified with woodapple (kapittha) pulp and dressed with jeera and pepper, and finally sesame seeds and roasted urad dhāl were added.[6f]

An item that occurs throughout the centuries, and is still widely eaten, is the laddu fashioned from sesame seeds and thickened jaggery, called pālala in *Sūtra* literature.[6b] An early Greek writer, Aristobolus, who was one of Alexander's party, describing laddus as 'cakes of sesamum and honey' (sugarcane products being unknown to him), noted that brahmin priests simply helped themselves to these sweet cakes in the markets without payment.[18c] The sesame plant, the Greek noted, was grown in the rainy season along with wheat and millets, to which Ibn Battuta adds the sugarcane nearly sixteen centuries later.[8Bb] Early Tamil literature notes that it was a product of hilly country, and was harvested when the pods turned dark. The rattling of the dry seeds in the pods gave rise to the Arabic term juljul or jeljel (meaning jingling of bells), from which originates the term gingelly that is used for the sesame in south India, and even by early British writers.[2e",358] The Hindi til is of course from the Sanskrit tila.

Sesame oil: Sesame oil has played a seminal role both in north and south India. The oil drawn from the sesame seed, tila, was thaila, and before long this had become the generic term in Sanskrit, and later in Hindi, for all vegetable oils. By coincidence, the same thing happened in south India. An early Tamil word for the sesame seed was ell, and both the commodity and the name was transported to the Euphrates valley, and are listed in the Chicago Assyrian dictionary.[358,359] The oldest Tamil grammar has enn for the sesame, nai for an essence (oil) and ennai for sesame oil. In course of time, ennai came to denote any vegetable oil, with a prefix to indicate its origin. Thus thēnga-ennai was coconut oil, and sesame oil itself was termed ell-ennai.

Sanskrit literature reveals that from about 500 BC or so, oil was extracted from sesame seed in an animal-drawn mortar-and-pestle device.[208] This was at first called thaila-pēshana-yantra ('oil-crushing-machine'), and later colloquialized to terms like ghani and kolhu in north India, and chekku in Tamil (*see* ghani). A Tamil work, *Puranānūru*, of about the second or third century AD, refers to the nurai or froth on the surface of oil extracted from the sesame seed.[361] This is typical of what happens in a chekku,

which was therefore probably in use. Three or four centuries later, the *Nāladiyār*[362] and *Nālāyira Thivya Prabhandhan*[363] refer to the chekku by this name.

Long before this, at the start of the Christian era, sesame oil packed in leather skin bags was an article of export from south India to Greece and Rome (*see* Rome, contacts with). It was also extensively used in south India as a 'sweet' oil with exceptional preservative qualities, for example, in making pickles. It is noteworthy that while most other Indian vegetable oils, like the coconut, mustard, safflower and niger, were strongly regional in terms of growth and hence in terms of crushing and usage, the sesame was grown all over the country, and its oils used everywhere. Early Sanskrit writings do not reflect this, since ghee was almost the only cooking fat consumed by the brahmins, and vegetable oils were for non-Aryans to use (*see* oils, oilseeds). But by the time of Charaka, more balanced views prevailed, and of all the vegetable oils, sesame oil was rated the highest, and particularly recommended for use in the rainy season; its use every day was not advised.

A further use of sesame oil in south India is for body massage. A Portuguese visitor to the Vijayanagar court in about AD 1590, Domingo Paes, described how King Krishnadevaraya 'is accustomed to drink three-quarter pint of gingelly oil before daylight and anoints himself with the same oil', after which he exercises vigorously with a sword and heavy weights 'till he has sweated out all the oil'.[298] For making perfumed oils, as well as medicated oils, sesame was the oil of choice (*see* oils).

Sesame oilcake: This was always a valued cattlefeed. As already described, it could be pounded fine and mixed with rice grits and jaggery to yield a tasty concoction, shāskuli. Sesame seeds, deskinned after soaking in water, yielded a fine, white oilcake which was specially relished. Among the items that could be eaten as a purificatory rite for the crime of killing a cow was sesame oilcake.[360]

sēv First mentioned as sēvika in the *Mānasollāsa* of the twelfth century,[49] but probably much older, sēv is the term for crisp-fried noodles of bēsan flour, extruded either thick or thin from a batter through dies into very hot fat. It is a popular snack food all over India, and stores well (*see* Gujarat, food of).

seviyan The thicker and shorter form of vermicelli, long made in India from hard wheat (q.v.). Seviyan is used to make a pāyasam by boiling it with milk and sugar, or a drier sweet, fried brown in ghee, a Parsi delicacy. In south India the product is called sēmiya, and is used to make a pāyasam or an uppuma (q.v.).

Seville orange The Sanskrit nāgaranga and Hindi nārangi, botanically *Citrus aurantium* and probably native to northeast India (*see also* citrus).

shāka Collective Sanskrit term for uncooked vegetables, the corresponding Hindi term being tharkāri. One of Charaka's food classes is shākavarga, under which eighteen items are listed.

shāli Generic term for fine winter varieties of rice (*see* rice).

sheep Sheep meat always figures in lists of edible flesh in Sanskrit literature, as in the *Mahābhārata*.[364] Charaka lists it, but not with such superior meats as venison, goat and hare.[81] However, in the *Vishnu Purāna* of about the third or fourth century AD, it is classed with other meritorious meats that are served at a shrāddha ceremony.[38] Strabo records that Alexander received 10,000 sheep and 3600 oxen as a gift when he was in Takshashila, presumably for feeding his army.[18d,100b] At a royal meal during the Sultanate period, Ibn Battuta noted that a 'whole roasted sheep (each) yielded 4 to 6 pieces', an enormous serving. The fat-tailed sheep, dumba, was thus described by Edward Terry in about AD 1620: 'Their sheep exceed ours in great bobtails, which cut off are very ponderous ... the flesh of them both is altogether as good as ours.'[134] In colonial times it was not uncommon for sheep to be reared and fattened for the table, to obtain good mutton,[123a] which was rarely to be had from the butcher. In fact, the term mutton is used in India for both sheep and goat meat, with even less distinction between the young of each species, lamb and kid (*see also* goats).

shellfish *See* seafood.

shrāddha Ceremony performed by a son at every anniversary of the death of his father, now a pitr or manes. Relatives are invited and feasted, but strict rules govern the ritual itself and the food that is served. Fried apūpas are auspicious. Both the *Rāmāyana* and the *Mahābhārata* note that the use of black salt (vīda) is interdicted,[6e] and also, according to the *Vishnu Dharmasūtra*, the use of black mustard seeds. On the other hand the use of black sesame seed is mandatory. Some vegetables, like green bananas, are allowed, but others are not.[71,196] In the south a pāyasam of horsegram (kollu, kulthi) with jaggery as a sweetener must be served, and in the north boiled mung. Various authorities differ on the excellence of the meat to be served, when such a practice was followed. The *Āpasthamba* and *Baudhyāyana Dharmasūtras* extol the use of rhinoceros flesh (khadga),[297] and the *Manusmriti* describes the periods of the year when specific meats must be served to really propitiate the manes.[6e] Today only vegetarian food would be served at a brahmin shrāddha.

shrikhand A sweet-sour concoction of curds, dewatered by hanging overnight in a muslin bag, and then sweetened with sugar, coloured yellow with saffron and flavoured with cardamom powder. It popularly accompanies a meal of small fried pūris (q.v.) in the Maharashtra area, and elsewhere is a dessert.

shukto A dish with a bitter taste, derived from, say, the bittergourd or neem leaves, which forms one constituent of a meal at lunchtime in Bengal (*see* Bengal, food of).

shūla *See* roasting; cooking.

sigdi A small, portable iron stove, with a detachable slatted iron plate to hold embers in place below the cooking vessel. The simple iron sigdi and clay chūlāh (q.v.) have been the two main forms of the stove all through India's history.

silaging A term which describes the decomposition in pits of vegetable matter with limited access to air to yield in course of time a mass of manure. As early as in the *Rigveda*, it occurs as sujavas, made from green fodder plants.

singhāda *Trapa natans* var. bispinosa is an exceedingly ancient plant, a fossil even several million years old having been found.[365] It occurs in early Vedic literature as mulāli and saphāka,[6a] and is a floating aquatic weed which bears underwater tetrahedral starchy nuts that are boiled and eaten. In the Indian view it is an uncultivated food which accordingly is permitted during abstentions and to ascetics. In about AD 1611, William Finch[366] described the water-chestnut as being 'green and soft and tender, white, of a mealish taste, being exceeding cold in my judgement, for always after eating it I needed (to drink) *aqua vitae* (water)'. It was even cultivated in Bengal as a food crop. William Sleeman[367] wrote in AD 1844 that 'the holdings are staked out and so much paid per acre ... The nut grows under water after the beautiful white flowers decay, ripening in September and eatable up to November'.

A century ago, it was described as being cultivated in Kashmir, and three types were distinguished:[2m''] bāsmati, a small nut with a thick shell (and presumably of fine flavour); dogra, a larger nut with a thicker shell; and kangar, with a thick shell and projecting horns.

In Bengal a small tetrahedral samōsa (q.v.) with vegetable stuffing is also called singhāda, and the term samōsa is reserved for one with meat stuffing.

sītaphal A globular, green, knobbly fruit with numerous shiny black seeds embedded in a sweet, custard-like pulp. The first description of this fruit in India is by P.Vincenzo Maria in AD 1672: 'The pulp is very white, tender, delicate, and so delicious that it unites to agreeable sweetness a most delightful fragrance like rosewater ... if presented to one unacquainted with it he would certainly take it for blancmange.'[1j] An error of translation has led to the mistaken belief that the custard apple was available in Delhi as early as in AD 1590; the word sādaphal in the *Ain-i-Akbari*, translated by Blochmann as custard apple, means only a perennial fruit,[1j] and had indeed been employed earlier by Babar himself for a citrus fruit.[8Bp]

The sītaphal is *Annona squamosa*, and the family certainly

derives from Peru and Ecuador, from where the species had long back reached Mexico.[7a] The genus is supposed to have come to India from the West Indies by way of the Cape of Good Hope,[1j] and there are several species. The sītaphal in India is also called sharifa (meaning noble fruit), as well as custard apple. Rāmphal (*A.reticulata*) was called bullock's heart in British India, but in the West Indies is called the custard apple. It is a large, reddish-yellow, faceted fruit with a smooth flesh and odd flavour that does not appeal to everyone. Two other less-known species are the hanumānphal or lakshmanphal, *A.cherimola*, and the very large and prickly *A. muricata*, called the māmphal or sour sop.

Stray facts could suggest an earlier presence of the sītaphal in India. The sculptures in Bharhut (second century BC) and the fresco paintings of Ajanta (seventh century AD) show fruits with a knobbly appearance; however Watt is of the view that these are not the sītaphal but conventionalized representations of either a jackfruit or a kadamba flower head. Also, the name ata used for the fruit in certain parts of India was once thought to derive from the Sanskrit ātripriya; against this are the original Mexican names, atē and ahatē, which were presumably transported to Manila, where the sītaphal is called ata or atē,[1j] and perhaps even to India.

snails There is a lone reference in old Tamil literature to the community of Mallars relishing fried snails.[347b]

snake gourd An ancient Indian vegetable in the form of a striped 2-metre long pod, whose name in English is singularly appropriate. In Sanskrit it is called chachinda and in Telugu pottalakāya, and botanically it is *Trichosanthes anguina*. The snake gourd is used in sāmbhārs, in a dry curried preparation, or fried in sections with a stuffing of minced meat or mashed vegetables.

soma The earliest Aryan compilation, the *Rigveda* (*c.* 1500 BC), graphically describes how the soma plant was crushed between stones called grava:

> Like strong draught animals who draw a cart,
> Bulls who wear the yoke and are harnessed together,
> The stones emit bellows, panting and heaving.
> Then the sound of their snorting is like that of horses.

Apart from such grinding stones, a stone mortar and pestle was later also employed for crushing soma as the number of participants became larger. The juice obtained was strained through a pavitra made of sheep's wool into ritual tubs, which had several names like dronakalāsa, chamsa and pūtabhrt. It was a sparkling, tawny liquid, consumed after being mixed with milk, curds or barley flour, both by the priests conducting the ceremony and the householder performing it.

In course of time soma also came to denote the moon goddess, and the entire ninth mandala of the *Rigveda*, consisting of 114 hymns, is

addressed both to the libation and to the goddess.[356b] Soma was clearly distinguished from the strong alcoholic drink, sura, which was indeed roundly condemned. An individual who consumed soma was exhilarated beyond his natural powers, and the juice itself was described as being 'primeval, all-powerful, healing all diseases, bestower of riches, loved by the gods, even the supreme being'.

Several attempts have been made to identify the soma plant. One guess was *Sarcostemma acidum*, a leafless shrub, still called somalata in several Indian languages, but containing a constituent that is toxic to animals and man.[31m] Another was *Asclepias acida*, the American milkweed, which contains a poisonous glucoside; the leaf juice is used against worms and to combat bleeding, and the roots to induce vomiting.[31n] A third candidate is ephedra, a genus which carries an adrenalin-like alkaloid called ephedrine; two species, *E. gerardiana* and *E. major*, are densely branched but almost leafless shrubs, the dried stems of which are employed in allergic conditions and as a cardiac stimulant.[31o] A fourth claimant is the Indian bhang (q.v.) plant, *Cannabis sativa*, whose leaves are chewed, or crushed to obtain bhang. Each of these identifications has obvious loopholes and is unsatisfactory.[369]

A strong case has been made for the fly agaric mushroom, of a deep red colour with white spots, which is *Amanita muscarita*.[370] This was widely used all over Central Asia in the third and second millennia BC, notably by the Koryaks and Chuckchis in Siberia.[371] The ancient Iranians used an exhilarating drink called hoama. The fly agaric mushroom exerts the kind of effects described in the *Vedas*, where Indra is exhorted to destroy enemy strongholds after fortifying himself with soma juice. Much of the poetic if rather cryptic imagery of the texts seems to fit the mushroom. Thus it is red, udder-like and powerful; has a head like a cap, and a single, seeing eye, like a stud or a knob; has a hide of wool, and the dress of a sheep, and is by day red, by night silvery, like Agni and like Surya.[370] The *Amanita* mushroom is an Old World species, and its active principles are now known: it contains the hallucinogen ibotenic acid, which, on drying, releases two other compounds, muscimol and muscatine, that repel flies.[371] Incidentally, the New World mushrooms of Mexico are *Psilocybes*, with hallucinogenic effects of a different kind caused by psilocybin and psilocin.[371]

sooty fowl *See* chicken.

sorghum *See* jowār.

sorrel The Sanskrit changeri and Hindi amrul, botanically *Oxalis corniculata*, the sorrel is a shrub with sour leaves that are used as an acidulant. Medical literature describes a dish called khada (perhaps resembling the khadi [q.v] of the present) in which curds are acidified using sorrel leaves, followed by seasoning

with jeera and pepper.[33]

soups As early as in 500 BC,[6c] extracts of pulses are described in Sanskrit as sūpa or yusa, and in succeeding centuries we read of extracts not only of pulses, but of cereals like rice and wheat, and of meats of various kinds. Many of them have a medical connotation. One is a rice soup, flavoured with long pepper, dry ginger and pomegranate,[6c] and the kānji (q.v.) left over from boiling rice was a base for soup-like beverages. Soups of meat were prescribed for vomiting, and of the chicken, pigeon and wild fowl for asthma.[33] Medically, unspiced soups were pronounced superior to spiced ones. In south India, a soup still in daily use is rasam (q.v.), a tamarind-flavoured extract from thuvar dhāl adopted by the colonial living in Madras which he called mulligatawny (q.v.).

South America, foods from *See* Mexico, food materials from.

south India *See* Karnataka, food of; Kerala, food of; Tamil literature, food references in; Rome, contacts with.

soybean China is the home of the soybean. It probably originated in the eastern half of north China in about 1200 BC, perhaps from *Glycine soja*, a wild form related to the cultivated *Gycine max*, which is soya.[7a] The present name may spring from the shu or sou used by Confucius. It spread by 300 BC all over southeast Asia, but not to India, and as late as in 1908 was described as 'having only recently been introduced into India' and 'growing as a garden rather than a field crop in hilly eastern India'.[2n] However a thorough survey in 1911 showed fairly extensive soybean cultivation up to heights of 2000 metres all the way from Punjab to Manipur.[372] In the 1930s, Mahatma Gandhi wrote about the excellent nutritional qualities of the soybean and of his own experiences of eating it after steam cooking.[372] The popular name was bhāt, and the Sanskrit term rājshimbhi, shimbi itself being the sēm. Many states, and notably the princely state of Baroda, looked into the possibilities of growing the soybean plant both for fodder and for food.[372] These efforts made little headway, and even in 1948, soybean production was estimated at only a thousand tonnes.[31p] The big spurt in soybean production in Madhya Pradesh had its beginnings only some twenty-five years later.

spikenard *See* ginger grass.

spinach *Spinacia oleracea*, spinach in English, pālankya in Sanskrit and pālak in Hindi, is an ancient plant in India, first mentioned in the *Sūtra* literature of *c.* 500 BC.[6b] Long before it was known in the West, the spinach has been extensively used in India as a green leafy vegetable in various ways. It can be incorporated into the dough used to make a parāta (*see* rōtis), or cooked soft with spices, sometimes along with paneer, and eaten with a blob of butter to accompany chapātis. The Parsis serve eggs on a bed of greens as akuri, and spinach is a popular

choice. Bengal has a climbing spinach, called puin, which may be cooked with a vegetable like pumpkin.[90] Names like Malabar spinach and Chinese spinach have been mistakenly applied in America to several *Amaranthus* species that were taken there recently from India.

spit The ancient Sanskrit term shūla was used even in Vedic sacrifices, in which whole animals were roasted on spits (*see* Rajasthan, food of; ashvamēdha; meat dishes).

spoons *See* cooking (utensils).

squash Squash is American usage for fruits that are termed pumpkins and gourds (q.v.) in India, all of which belong to the *Cucurbita* family. Thus the American winter squash, *C.moschata*, is known in India by such names as lāl-kumra, kaddhu and kumbalakāyi; fruits are round to oval, bluntly ribbed, with a yellow or reddish flesh. Other winter squashes of America are here termed dūdhi and dumbala, some smooth and oblong, others fluted, and either spherical or flattened. Another winter squash is *C. mixta*, called cushaw in the New World and the African gourd in India; it has a prominent peduncle, and is used to make the supporting bowls of the veena and thānpura, both musical instruments. The American summer squash, *C. pepo*, called marrow and pumpkin there, is a green, deeply ridged pear-shaped fruit, which in India has names like safēd-kaddhu, kumra and surai-kāyi.

The *Cucurbita* species have been traced back 10,000 years in Mexico and Guatemala,[7n,215] and were fully developed there. Yet many carry Sanskrit names of considerable antiquity,[20] which is probably explained, not necessarily by human intervention, but by the ability of these dried gourds to float across the seas from continent to continent without losing seed viability.

stale food A cardinal concept of the Hindu food perception is that boiled or kaccha food (q.v.) cooked in the sanctity of a home kitchen using ritual codes has necessarily to be cooked afresh for every meal. Left-over food, termed ucchista in Sanskrit, and bāsi or jūtha in Hindi, is likely to become ritually polluted, and cannot therefore be eaten later.[22,23]

star fruit The mildly acidic, juicy fruit of *Averrhoea carambola*, with a star-shaped cross-section, is kāmaranga in Sanskrit and kamrakh in Hindi. It is a native of the Moluccas, but has long been in India, though never regarded here with the same esteem as in southeast Asia.

steaming Though Xuan Zang blandly stated in the seventh century AD that Indians 'do not know the steamer used for cooking rice',[8Aj] the prevalence all over the country of numerous steamed dishes like the idli, dhōkla, modak and puttu indicates that steaming was a familiar domestic practice. No specific vessel was really needed, since simple means suffice. Steaming vessels did develop in south India a couple of

centuries ago with names like the idli-pātram in the Tamil country and sēkala in Kodagu (*see* idli; dhōkla; Kerala, food of; cooking practices).

Stone Age paintings Paintings are found at several places in India, notably in the caves at Bhimbetka about 40 km south of Bhopal,[140,141] and at Singhanpur near Raigarh and Benakar near Hampi. The earliest paintings were made in about 8000 BC and continued for the next few millennia. Early man's quest for food is reflected in these paintings, with scenes of hunting with spears, trapping deer, stalking game with bows and arrows, and spearing fish or catching them in nets. The animals shown being hunted, probably for food, are the bison, gaur, peacock and rhinoceros, besides giraffe and ostrich which exist in India no more. Paintings at Bhimbetka show groups of dancers linked arm in arm performing what appear to be magic rituals, aimed perhaps at gaining control over the desired prey. Elaborate masks and head-dresses are depicted, which perhaps sought to imitate or emulate animals and birds. Enormous bows even taller than the hunter himself are shown, besides traps made of pliant materials like reeds and ropes.[40,41] The quest for food was clearly an ardent and incessant activity.

Of particular interest at Bhimbetka are the activities of women.[40,41] They are shown gathering fruit, with long baskets hanging on their backs. Women are frequently shown kneeling down or standing up, mixing something in a device that is shaped like a shallow letter 'w', perhaps a section of a dried gourd. One woman has her hands on a ball (of dough?) placed on a ledge in front of her. What exactly is being done can only be guessed at. Another woman is clearly pounding grain using a long (wooden?) pounder in a deep, V-shaped vessel.[40,41] Here are food-processing activities painted by contemporaries with verve and economy.

sugarcane The likely progenitor of *Saccharum officinarum*, the sugarcane, is *S. robustum* (2n=80), which, starting several thousand years ago, was subject to human selection in or near Papua New Guinea for sweetness and lack of fibre.[7b'] These so-called noble canes then migrated northwest to the Asian continent, and hybridized, probably in India, with the wild kasa grass, *S. spontaneum* (2n = 40 to 128), to yield thin but sweet canes. These are now called *S. barberi* (2n = 64 in India, and from 80 to 120 elsewhere), which were the varieties grown throughout the centuries all over India for chewing and for processing into products.[7b']

Indus Valley cities have yielded charcoals that have been identified as originating from some *Saccharum* species, but whether this was the sugarcane is uncertain.[32a] The kusara of the *Rigveda* is thought to refer to it, and ikshu, which is certainly the sugarcane, is mentioned

thus at a sacrifice in the *Atharvaveda*: 'I offer you dried sugarcane, white sesamum, reeds and bamboos.' All the *Samhitās* also contain references to ikshu.[6i] The *Mahābhāshya* of Patanjali (*c.* 600 BC) mentions sharkara repeatedly.[6d,374] Charaka describes two varieties of sugarcane, the superior paundraka growing in north Bengal (Pundra), and the inferior vainsaka.[24] He even derives the word guda, meaning jaggery (q.v.), from Gauda, as Bengal was then called.[6d] Sushrutha mentions twelve varieties of sugarcane, and Vaghbhata lists five; the best kind in his view was vamshika, with thin reeds, and the next best the paundraka of Bengal.[17Ab]

Visitors to almost every part of India have commented on the sugarcane. To the Greeks, it was a totally new and curious article. Nearchos of Crete, who was in Alexander's entourage, talked of a 'a reed tree that produced honey without the association of bees'.[40c] This was in the Punjab area, and in Sindh in AD 1080 Al-Idrisi noted that the country produced dates and sugarcane in abundance.[8Bh] Ibn Battuta in the thirteenth century AD was of the opinion that the sugarcanes of Barkur in Kerala 'were unexcelled in the rest of the country'.[8Bf] Bernier who visited Bengal talks of the extensive fields of sugarcane.[8Bd] Early Tamil literature poetically describes the river Kaveri, 'along whose banks the sweet cane's white flowers wave, like pennoned spears rising from the plain',[205d] and indeed the sugarcane was always associated with river valleys.[101] A homely touch is provided by the observation in the *Aganānūru* that when carts got stuck in the mud, stalks of sugarcane were heaped beneath the wheels to provide a grip.[86a] It was a valuable regional item of barter, for example, for venison or arrack.[101]

In colonial times, thick or noble sugarcanes, *Saccharum officinarum*, were brought into India from the West Indies and the East Indies. In 1912, the Sugarcane Research Station was founded in Coimbatore as a result of the efforts of Pandit Madan Mohan Malaviya to stop the huge drain of currency incurred through the import of sugar into India from Java.[8Cc,158c,375] At this centre, research efforts were made to cross Indian sugarcanes with a species of wild grass, *S. spontaneum*, found growing wild in the vicinity. Later sorghum (jowār) and bamboo were also introgressed to yield a series of hybrid sugarcanes that excelled existing products in terms of thickness, sugar content and resistance both to disease and adverse climate. In five short years, between 1930 and 1935,[8Cd] these sugarcanes developed by T.S. Venkataraman led to a doubling of cane production in the country.

sugarcane products Sanskrit literature at the start mentions only honey as a sweetening agent, but by the Buddhist period a millennium later it had been all but displaced by guda

(jaggery or brown sugar).[6a,6b,6c] Buddhist literature[6c] also refers to the crushing of sugarcane in a yantra (machine), an ancestor of the kolhu or mortar-and-pestle press used till very recent times. Even the name of this device seems to have a connection with the sugarcane, which in Sanskrit is ikshu. This yielded to later words like ikh and ukh for the sugarcane, and to ukhli and ōkhli for a small mortar.[376] The residual mass from the crushing is termed khali or khalli in Marathi.[57d] Finally, the original mortar in the *Rigveda* for crushing soma juice was the ulūkhala, itself not a far cry from the current term kolhu for the sugarcane press.

After the expression of sugarcane juice in a kolhu, it was boiled down to a series of products. *Sūtra* literature (800–300 BC)[6b] mentions thickened phānita and then solid guda. In 326 BC, Alexander's party speaks of 'stones the colour of frankincense, sweeter than figs or honey',[32a] an unmistakable reference to large Indian crystal sugar lumps, khand. Indeed Kautilya in his *Arthashāstra* of almost exactly the same period describes the whole range of products from sugarcane juice, namely phānita (thickened juice, now called rab), guda (jaggery), sharkara (brown sugar or būra, which was gur crystals thoroughly drained of molasses but not refined in any way), matsyandika (literally fish eggs or roe, which must have been crystalline sugar of some sort) and khand (sugar in the form of large lumps or small, faceted crystals).

The mode of preparing khand, later termed khandsāri, is not described, but it was later made by an ingenious process. Thickened rab was held in a basket lined with a fine cloth. Water in a finely diffused form, derived from moist aquatic weeds placed on top of the basket, served to gently wash away the mother liquor. The layer of sugar crystals that formed and grew immediately below the weeds was repeatedly removed, and this constituted khand; it could be redissolved and refined to yield almost white crystalline sugar, called misri or chīnī, or large crystals.[20''] It is instructive that in about AD 627, there is a record of a Chinese delegation to Emperor Harsha to study the manufacture of crystal sugar.[377] The widespread Hindi term chīnī for sugar current even today may have resulted from the import from China at some time in the past of superior white crystal sugar. In British India, an enormous expansion occurred in the area under sugarcane after AD 1800; gur and khandsāri production went down, while the quantity of modern crystal sugar produced in vacuum-pans went up dramatically.[119h]

In one classification of Indian food, as things to be licked, sucked and chewed, sugarcane pieces are a prime example of foods to be sucked, and are served as a second course at a meal. Sugarcane juice is a beverage (q.v.) which may be spiced with ginger, for example. It

was a food permitted to Buddhist monks, and even sugarcandy was served to Xuan Zang by Su-Yeh, the king of the Turks, as a 'pure food'.[319] Guda or jaggery (q.v.) is a major sweetening agent, which may be thickened in solution over a fire to yield a binding material for soft laddus (q.v.) and hard chikkis (q.v.). Khand crystals are mixed in both for taste and textural variety with various crisp snacks, betel nut grits (to yield supāri) and saunf (q.v.).

In ayurvedic terms, the sugarcane and sugar not only taste sweet, but also have a sweet aftertaste (vipāka), and are dry, light and cold.[325] Sugar has a mild digestive and aperient action; it promotes the excretion of waste products, and is recommended in kidney and liver complaints.[34] Sushrutha is of the view that as sugarcane products are purified, they become 'colder' but more difficult to digest; in fact, even sugarcane juice pressed out between wooden rollers is rated nutritionally inferior to chewing sugarcane itself.[33]

Sultanate, food of The Sultanate rule in Delhi lasted three centuries, starting from AD 1206 AD with the so-called Slave dynasty of eleven rulers, then the house of Balban (2 rulers), six Khaljis, three Tughlaks (including Muhammad bin Tughlak, AD 1324–51), four Saiyyids and three Lodis. It ended when Babar from Afghanistan set up Mughal rule in India in AD 1526.

Amir Khusrau (AD 1253–1325) spanned six reigns, of both the Khalji and Tughlak sultans. The food of the Muslim aristocracy could include very sweet sherbet, light and tandūri rōtis, samōsas (prepared from meat and onions), mutton, birds like quails and sparrows (kunjshakka), halvās, and a sweet beverage, subuni-sakar; wine was drunk with meals, which was followed by the betel quid (tambōl).[53] The master-muster of Sultan Balban in Sindh fed his entire secretariat every midday with large trays loaded with fine naan, goat meat, chicken, biriyāni, fuqqa (a drink of wine or barley), sherbet and betel leaves.[53] When nobles had eaten together, the unconsumed food would be distributed to fakīrs and beggars.

He also described how grain was stored in a khatee or deep pit lined with straw and sealed when absolutely full with clay and cowdung; except for a change in colour, the grain remained edible for years.[200] Some fifty years later, Ibn Battuta describes rice brought out from storage in the walls of Delhi fort, where it had been held for ninety years, and 'although it had gone black in colour, it was still good to the taste'.[8Bb] Ibn Battuta was born in Tangier and spent twenty-nine years in India (AD 1325-1354), writing his *Rehla* or Travels after returning home. He wrote that at the tables of the rich were served rōtis, roasted meat (shiwawoon), chicken, rice, samusak, and round pieces of bread split and filled with sweet paste.[53] At a grand dinner given by Sultan Muhammad bin Tughlak to a

distinguished visiting qāzi or judge, the food items served in order were khubi (probably chapātis); roasted sheep cut into very large pieces, four to six to a whole animal; round cakes of bread soaked in ghee, called subunia, in the middle of which was placed a mixture of almonds, honey and sesame oil; a brick-like sweet cake called khisti made of flour, sugar and ghee, each placed on a piece of bread; dressed meat cooked with ghee, onions and green ginger in dishes of china; four or five samusaks; next a dish of ghee-cooked rice with a roasted fowl (dōjāj) on top; and finally sweet items like hashimi and al-qahiriya (a pudding from Qahira).[53]

Considerable ritual formalities were observed. The chamberlain first bowed low to the Sultan; all the other diners present followed suit and then sat down. Gold, silver and glass cups of sherbet were first served, Bismillah was called by the chamberlain, and dining commenced. At the end of the meal, jugs of barley water (fuqqa) were served, followed by betel leaves and nuts. Bismillah was called again, and the guests bowed and retired. Both private and public dinners were held. Private dinners were attended by the Sultan and about twenty people, dignitaries whom he had summoned. He would send a rōti to a person whom he specially wished to honour, who received it with his left hand and bowed, with his right hand touching the ground. Public dinners, which could also be attended by the Sultan, were larger affairs headed by the chief palace officer, who held a gold mace in his hand. All except the Sultan stood up when he entered and gave a call. After the dishes had been served on the floor, the chief police officer eulogized the Sultan, followed by his deputy, who ended by bowing to him, as did everyone present. When they had taken their seats, the Sultan would appoint one of the great amīrs to supervise the feeding of the people.[53]

A rigid seating order prevailed at these feasts. The judges (qāzis), orators (khatibs), jurists (shorfa), saiyids and dervishes (mashaik) sat at the head of the Simat (dinner carpet). Then came the Sultan's relatives, the great amīrs and the rest of the people, and since everyone sat strictly at his appointed place, there was no confusion. Each person had his own servings, and there was no sharing. These meals were eaten twice a day, in the forenoon and afternoon.[53]

sura A term repeatedly used in the *Rigveda* for a distilled alcoholic drink manufactured from barley or wild rice flour, whose consumption by the despised local population was strongly condemned. Components fashioned in clay found in Indus Valley excavations have been assembled[108] to form a distillation still, a key component being a plate with perforations at the base. This was placed on top of a pot in which fermented liquor was boiled; alcohol

passed through the perforations and was condensed on the cold undersurface of a vessel placed on top, to fall in drops into the annular space of a basin. Thus a strong spirit, sura, would have been available to the community.

sūran The huge elephant-foot yam, *Amorphophallus campanulatus*, can weigh as much as 10 kg. The common names are sūran in Hindi and senai-kizhangu in Tamil, and there are three Sanskrit names, vajrakanda, sūrana and arsogna (literally, destroyer of piles).[6j] Till recently, dried slices were sold as madanamast in bazaars as a remedy for piles and dyspepsia.[2i''] The *Mānasollāsa*, written in the twelfth century AD, describes an acidic pralēhaka relish made with curds, fruit juices and pieces of sūrana.[186] The sūran originated in India, and then moved eastwards and westwards even as far as America.[7f]

Sushrutha Samhitā *See* Sanskrit literature.

Sūtras *See* Sanskrit literature.

sweet lime The mītta-nimbu, *Citrus limettoides*, is of Indo-Iranian origin, and is represented in India by the rather insipid chikna of Saharanpur (*see also* citrus).

sweet potato Cave remains which go back to between 10,000 and 8000 BC leave no doubt that *Ipomoea batatas* is of Peruvian-Mexican origin.[7j] Despite this, archæological sites in Hawaii, the Easter Islands and New Zealand have yielded remains of the tuber. In India the evidence is of a literary kind. The pindāluka mentioned in the *Rāmāyana* could be the sweet potato, and Sushrutha employs the more specific madhvāluka.[6j] The current Hindi term is shakarkand. The early Tamil work *Puranānūru* alludes to the tubers of the sweet potato (sakkarai-kizhangu) 'descending from the (foot of) the creeper'.[86a] Perhaps the sweet potato came to India eastwards from the South Pacific rather than from South America.

In AD 1615 Edward Terry mentioned potatoes, and so did John Fryer in AD 1678, but since potatoes had not by then reached India (*see* potatoes), these were probably sweet potatoes, which were equally strange to the English visitors.

The sweet potato in ayurvedic perception is hard to digest.[325]

sword bean The sword bean is *Canavalia gladiata*, termed badā-sēm and makkan (butter)-sēm in Hindi. It is the product of a large climbing plant found throughout India and is cooked as a soft vegetable.

A more recent entrant to India from the New Word is *Canavalia ensiformis* of the same family. This is called in English the horse bean and jack bean and in India the French bean. It is large, thin and flat, resembles the sword bean, and has unfortunately also been termed badā-sēm in India.

The sem (q.v.) itself is the hyacinth bean, a very ancient product called shimbi(?) in Sanskrit, valpāpdi in Gujarathi and avarai in Tamil. It has a

white hilum running along one edge, as do the two badā-sēm beans.

T

tamarind *Tamarindus indicus* is native to the tropical savannah of Africa,[7a] but has grown in India since prehistoric times. In AD 1298 Marco Polo refers to it as tamarindi, a name that derives from the Arabic thamar-ul-Hind or tamar-ul-Hindi, the date or fruit of India.[1k] It has an ancient aboriginal name, chincha, in Sanskrit, and another, āmlikā, from which comes the Hindi imli. In Tamil it is termed puli, which later became the generic word for tartness.

The tamarind figures extensively in old Tamil literature. Rice dressed with it was puli-kari (current puli-sādam),[347a] and meat boiled with tamarind and pepper was pulingari or thuvai.[63] Pastoral people are described as imbibing an aromatic tamarind soup,[61] perhaps akin to the rasam (q.v.) of the present. Two sour fruits, the tamarind and the nellikāyi (āmla), were blended to make a drink.[101] A Kannada work of AD 1485 by Terekanambi Bommarasa notes a tamarind side-dish.[67b]

Tamarind is used more widely in south India, but is not unfamiliar elsewhere. The *Mānasollāsa*,[58] compiled in central India, describes a beverage made from whey with sugar and cardamom, which was blended with fruits and roasted tamarind seeds. The latter item was at one time a regular adulterant of coffee powder. Sorpotel, the pork dish of Goa, uses both vinegar and tamarind. A dark brown tamarind sauce is poured as a dressing over curd-based dishes like the dahi-vadā (q.v.).

tamasic One of the three types of guna or inherent temperament, the other two being rajasic (q.v.) and sattvik (q.v.). Tamas has the connotation of coarseness and roughness, and of quick and thoughtless action. Tamasic foods include pork, beef, non-scaly fish and strong liquors. Lord Shiva, the destroyer, exemplifies the tamasic nature.

Tamil literature Many entries in this book carry references to ancient Sangam Tamil literature, which will now be described. In ancient times, Tamil poets were believed to have gathered at three Sangams to recite their works, which were then put together in collections. There is some dispute about the dates of these three academies of letters, but periods of 300 to 100 BC, 100 BC to AD 300, and AD 300 to AD 700 are now commonly accepted for the three Sangams on grounds of both internal and external evidence.[83,86a,103f,378,379a]

No works of the First Sangam have survived. From the Second, there are only fragments of the *Tholkāppiyam*, a grammatical treatise in the form of aphorisms that is attributed to the sage Agasthya. From the Third Sangam a mass of

material has come down by way of both collections of works, and of stories. The nature of these is tabulated below.

ANTHOLOGIES

(a) *Ettuthokai* (Eight Collections): Some of these may be of the second and third centuries AD, the others of a later date.

(b) *Patthupāttu* (Ten Idylls): The first four of these are dated to the third and fourth centuries AD, and the last six to the sixth century AD. These ten idylls included the *Pattinapālai, Porunārāru, Perumpānūru*, and a long poem of 782 lines, *Mathuraikkānchi*, dated about AD 450.

(c) *Pathinendru-Kīllkannaku* (Eighteen Minor Didactic Poems): These are placed in the sixth and seventh centuries AD.

INDIVIDUAL POEMS

(a) *Nedunalvadal* by Nakkirar.

(b) *Thirukkural* by Thiruvalluvar.

COLLECTIONS

(a) *Aganānūru* or *Akam-nānūru*: Some of these pieces may be older, but most are dated between the fourth and sixth centuries AD.

(b) *Puranānūru*: A collection of the works of 150 poets, including Kapilar, Avvaiyar and Korur-Kilar. The earliest of these stem from before the fifth century AD, the others being of a later date.

EPICS

(a) *Silappadikāram* (Story of the Anklet): This is by Ilango Atikal, a prince, and is dated around the sixth century AD.

(b) *Manimēkhalai*: This is by Seetalai Sattanār, and is contemporary with the above epic.

(c) Five other epics have survived, while three have been lost.

LATER LITERATURE

(a) Nayanar mystics: These collections date from between the seventh and the twelfth centuries AD, and include the *Thiruvāchchakam*, *Thevāram* and *Periyapurānam*.

(b) Alwar mystics: There is a collection of 4000 stanzas, of the same period as the above, by poet-mystics like Nammalwar, Thirumangai, Kulasekara and others.

The references to food in old Tamil literature in the present book belong mostly to the fourth, fifth and sixth centuries AD.

tandoor At the Indus Valley site of Kalibangan were found small, mud-plastered ovens with a side opening 'very strongly resembling the present-day tandoors'.[249a] Live embers are placed at the bottom and fanned briskly so that they glow, raising the temperature of the clay sides. Thick, slightly leavened wheat rōtis called naan and tandoori are slapped on to the sides to cook, with some puffing and surface charring in patches. Meat and fish can also be tandoor-grilled; chicken is glazed a brilliant orange-red through a turmeric and lime rubbing, and even artificial colouring. Tandoori

products are very dry. Till recently the tandoori style of grilling was confined only to north and northwest India, but has now spread by way of restaurant food all over the country.

tangerines Also called mandarins, botanically the species is *Citrus reticulata*; in popular terms it is the loose-jacketed santhra, which is probably of Chinese origin. There is a Japanese tangerine species, and mandarins with names like Satsuma, Mediterranean and spice (*see* citrus).

tapioca The tapioca tuber is a staple food only in Assam and Kerala, being eaten elsewhere as a tuberous vegetable, like the sweet potato and potato. Outside India it goes by such names as cassava and manioc. Though wild *Manihot esculenta* is not known, maximum diversity has been noted in northeast Brazil and south Mexico.[2s] Even as far back as in 3000 BC, tapioca flour was an important trade commodity in the northwest part of South America.[2s]

The crop is stated to have come into India only around AD 1800.[2s] There may have been more than one point of entry.[381] An early ingress may have been to Malabar from Africa, to which it had been transported from Brazil with the slave trade,[147] and a later one from the Philippines to Assam and Bengal. About a century ago, following the failure of the rice crop and widespread distress, the Travancore ruler Vaishakam Thirunal (1880–85) investigated several plants in terms of future food security. He decided on the tapioca, which could be grown in every backyard in lush Kerala and kept in the ground till required. The ruler personally conducted demonstrations to show how the bitter principles should be leached out of the tuber before consumption. Such bitterness varies in degree;[31p.380] long duration varieties tend to be bitter, and are therefore chosen for the industrial production of tapioca starch, since the plants can simply be left untended in forest areas without danger of animal depredation. Moisture stress, and the location in which the plant is raised, also influence the development of the bitter constituents. Tapioca contains very little protein, unlike common Indian cereal staples. Its consumption is on the decline in Kerala.

tastes *See* rasa.

tea The tea plant is indubitably Chinese, and both common terms for tea that are in use the world over—teh and cha—are of Chinese origin. Cultivation has been practised for 2000 years, and at first the leaves were probably eaten as a green vegetable.[382] Brewing is first described in a Chinese book of AD 220–265. The leaves were made into cakes, with rice added as a binder for older leaves; the cakes were then baked to remove the leafy odour, and pieces were broken off for brewing. A Chinese book entirely on tea was written as early as in the seventh century AD.[382] I Ching, a Chinese traveller in India in the fifth century

AD, described the tea brew.

Mendelslo, in AD 1662, noted the medicinal use of the tea brew: 'At our ordinary meetings every day we took only thay, which is commonly used all over the Indies, not only among those of the country, but also among the Dutch and the English, who take it as a drug that cleanses the stomach, and digests the superfluous humours, by a temperate heat particular thereto.'[2j] In AD 1665 Jean de Thevenot notes that the brahmins drank nothing but water 'wherein they put coffee and tea',[8Ai] and in AD 1689 Ovington records that tea was drunk by the baniās in Surat without sugar, or mixed with a small quantity of conserved lemons, and that tea with some spices added was consumed as cure for headache, gravel and gripe.[383] The source of the tea leaves then in use is not clear.

There are two major forms of tea. *Camellia sinensis* var. sinensis is a Chinese variety with small leaves, and *C.sinensis* var. assamica is almost a tree, with large coarse leaves.[7c] Modern plants in India are mostly hybrids of the two.[384] A secondary centre for tea plant diversity was Kampuchea.[7c]

In 1830, when the Chinese tea trade with England collapsed during the Opium Wars, commercial tea planting was proposed by the British in India.[384] Plants brought in from China did badly, but a few years earlier Major Charles Bruce had reported seeing tea plants with thick leaves being cultivated in Assam. Growth trials with both plants in Assam, and on the Himalayas and the south Indian hills, showed the Assam varieties to hold the most promise. An opinion poll in England in 1838 confirmed the quality of the tea leaf, and in 1841, two parcels of tea, one of 95 chests from the Luckimpore plantation, and another of 30 chests of tea that had been traditionally raised in Assam by the Singfo tribe, whose chief was Ningrolla, commanded high prices at a London tea auction, and commercial interest was aroused. In 1864, £ 3 million and in 1875 £ 26 million worth of tea was auctioned in London at Mincing Lane. The Assam Company had been formed in 1840, and between 1835 and 1853 tea plantations sprouted all over Assam and later in the Kumaon hills, around Dehra Dun, and then in the Kangra Valley and Darjeeling.[384] In south India Christie and Crew laid out the Ketti Experimental farm near Ooty (Udhagamandalam); Mann planted tea near Coonoor, and by 1839, tea was reported to be 'growing luxuriously in the Nilgiris'. Sri Lanka, where coffee plantations had been wiped out by fungal disease by 1887, 'was saved from absolute bankruptcy by the substitution of tea for coffee'.[2j]

With rapidly expanding production, tea was actively promoted both within India and abroad. Production at Independence was about 245,000 tonnes, of which a major proportion was exported.[119b]

tejpat The aromatic leaves of the Indian cassia, *Cinnamomum tamala*, used as a flavourant in palāos and biriyānis. At the beginning of the Christian era, tejpat leaves were exported to Rome under the name malabathrum (q.v.). The Sanskrit name tamali occurs in the *Rājā Nirghanta*. Tvak is mentioned by Sushrutha and Vaghbhata; this was the bark of the same tree, and an inferior substitute for cinnamon, used, for example, to perfume drinking water.

temple foods It is usual in a Hindu temple to prepare foods that are first offered to the deities, and left in their presence for a while to satisfy their spiritual hunger. Thereafter the food becomes a sanctified prasād (q.v.), which is distributed or even sold to the assembled devotees. Each temple has its own special prasād(s) established over a long period of time, and the quantities cooked daily at the popular temples are enormous.

In south India, the Padmanabhaswami temple in Thiruvananthapuram has a special aviyal that uses traditional vegetables, fresh coconut and coconut oil, and no mustard seeds. The Ganesha temples of Kerala have the unni-āppam, which are spongy-brown fried pieces made of a melange of rice powder, banana, jackfruit and jaggery. The Muruga temple of the Palani hills has its own panchamrita of crystal sugar, honey, ghee, cardamom and fruits (bananas, dates and raisins), which does not go rancid for even as long as six weeks.[196] The great Vishnu temple of Devarajaswami in Kanchipuram has a prasād of a giant idli weighing a kilo and a half; this is spiced with pepper, jeera, ginger and asafoetida, fermented with curd, and then steamed.[387] The Vishnu temple at Srimushnam has a confection prepared from the sweet root korai, which is held to be dear to Varāha, the boar incarnation of Vishnu.[385]

In the great Thirupati temple dedicated to Lord Venkateshwara, laddus are given as prasādam to the pilgrims after it has been offered to the deity. As many as 70,000 of these are made every day in the inner kitchen by thirty cooks, who use 3 tonnes of urad dhāl, 6 tonnes of sugar and 2.5 tonnes of ghee, besides large amounts of raisins, cashewnuts and cardamom.[386] Smaller quantities of other sweets are also made, besides 30,000 each of the vadā, dōsai and ravā-āppam. In the inner kitchen, some 400 kg each of various rice-based dishes, like savoury and sweet pongal, sour rice, curd rice and sweet pāyasam are cooked every day to be served to pilgrims, who eat in large dining halls.[386] At the Dharmasthala temple in Karnataka, food is served every day to between 30,000 and 50,000 people.

Some of the most elaborate preparations of temple food are perhaps those at the Jagannātha temple in Puri in Orissa,[197] where every day a thousand persons manning 750 chūlāhs and ovens turn out a hundred

varieties of dishes using rice and wheat and their flours and grits, urad dhāl, indigenous vegetables, jaggery and spices, with cow ghee as the cooking medium. The gods are served ritually five times a day, and pilgrims can eat at the spacious bhōga-mandapa, or buy mahāprasād at a huge market within the temple walls.[197] In these very traditional temple foods, many recently arrived food ingredients will be avoided; thus only sweet potatoes are used at Puri, though potatoes are in common local use.

tempura These are strips of vegetables or fish dipped in batter, deep-fried and served piping hot one by one in Japan. They closely resemble the well-established bajjiyās of India which use a batter of bēsan (q.v.), and indeed appear to have been introduced into Japan by Catholic Portuguese missionaries who were accustomed in India to eating fish fried in batter on days of abstinence from meat, such as Fridays.[388]

thāli The sthāli was a ritual cooking pot used in a domestic Vedic kitchen to boil rice, the everyday kaccha food (q.v.). The name survives in a modified form in the thāli of today; however, this is not a pot but a circular metal dining plate with raised edges, often accompanied by deep, small circular metal bowls called katōris in which are placed accompaniments to the meal, like dry and wet curries, curds and even desserts like pāyasam. Earlier used mostly in the northern parts of the country, thālis are now popular everywhere, both in the home and in restaurants. At large gatherings, as for a wedding feast, disposable leaf plates (q.v.) would still be preferred.

thavā *See* griddle.

thuvar The thuvar or arhar (pigeon pea, *Cajanus cajan*) is an important pulse in the country. It is called ādhakī in early Buddhist literature (*c.* 400 BC)[6c] and is the thuvarika mentioned by Charaka.[6f] It had long been held to be of African origin, since no wild form could be found in the country. However, careful work in India showed that the progenitor of thuvar was a species of *Atylosia*, of which seventeen species grow in India;[32b] this includes wild species on the Western Ghats of the Dekhan plateau. Thuvarai crosses easily with at least three species of *Atylosia* to give a fertile first-generation and later crosses, and this involves no change in the chromosome number of 11. A southern origin also seems likely from the southern name thuvarai or thuvari which travelled northwards. Even today two distinct varieties are recognized.[2k''] Arhar in north India is a tall shrub with yellow flowers streaked with purple, and long, hairy, maroon pods that bear four or five seeds. The southern thuvar is a short plant, with pure yellow flowers and short, green pods with three seeds.

Thuvar dhāl is the base for the sāmbhārs and rasams of south India, and indeed has second place among

the pulses of India, after the chickpea (chana). It is surprising therefore that it does not seem to be mentioned in old Tamil Sangam literature. In the twelfth century AD, the *Mānasollāsa*[49] of central India describes a dish called vidalapāka made from five pulses, of which one was parched thuvar. A pulse called krishnadhaki or black thuvar, of uncertain identity, is referred to in the *Shivatattvaratnākara* (*c.* AD 1700) of the western coast.[51] A work of AD 1648 AD by Govinda Vaidya[67b] refers to a dish of thuvar dhāl cooked with vegetables, the current huli or sāmbhār (q.v.) which has a place in every southern meal.

tiffin In colonial India, when the evening dinner became a heavy daily repast, only a light afternoon meal was necessary. This was called tiffin, a word which first appears in AD 1807 in Anglo-Indian writing. It meant a light family meal of salads, done-over remnants of the meats of the previous day in the form of minces, pies and even curry, fruit fools, jellies and ice-creams.[389] The word tiffin itself is a colloquial English term, which comes from the word tiffing for eating or drinking out of mealtimes, and the word tiff, which was to eat the midday meal.[1m] The word tiffin has been adopted particularly in the Madras area for a light afternoon snack of items like the uppuma, dōsai and vadā, to the extent that many take it to be an Indian language word.

tins and bottles Certain tins and bottles manufactured for the distribution and sale of specific products were later put to innumerable uses in Indian bazaars and homes. The first Indian tinplate containers, made in about AD 1926, were 4-gallon (18-litre) square tins for petroleum products, especially kerosene. Kerosene tins found a myriad uses as storage vessels for both liquids (water) and foodgrains, often being fitted by the tinsmith with hinged lids and hasps. Another popular tin after about 1930 was the round yellow-and-green 5-1b tin in which the Dalda brand of vanaspati was sold. Other favourites were biscuit tins, long, oblong and open-topped, with a fit-on cover, and cigarette tins for vending fifty cigarettes, a round tin sealed with tinfoil that could be pierced and then cut out cleanly with a wedge-like opener built into the cap. These cigarette tins even became volume measures in bazaars and the home kitchen for items like grain and sugar. Among bottles perhaps the most persistent was the screw-cap bottle in which Horlicks powder was vended, for which even replacement caps in stainless steel were made by enterprising manufacturers.

tobacco Shredded tobacco leaves, Indianized to thambāku, are frequently chewed in India packed in a betel quid, making the product a food of sorts. The tobacco plant is of South American origin, but was introduced into India as early as in the sixteenth century. This seems to have been at two locations, the

Surat-Broach area in Gujarat and the Andhra Pradesh coast round Macchilipatnam.[8Bq] Both plantations progressed so rapidly that exports were recorded as early as in AD 1619 from the former location and in AD 1622 from the latter. Akbar was presented a pipeful of tobacco by his courtier Asad Beg, and took two or three puffs, strongly against his physician's advice. So rapidly did the habit of smoking spread that Jahangir issued a ban against it in AD 1619, but to little effect. Revenues from tobacco were considerable almost from the start.[8Bq]

toddy A simple anglicization of the Hindi term tāri (itself from the Sanskrit tāla), the fermented sweet sap of the tār or palmyra palm (q.v.). It was referred to as tāla by Megasthenes as early as in 350 BC, and by numerous later European visitors.[11] The Tamil term is kallu, and the pot in which the exudate is collected from incisions is termed kall(u)-kundam in old Tamil literature[86] (*see also* beverages, alcoholic).

tomato In AD 1880, Watt remarked that tomatoes were grown chiefly for the European population; Indians, he added, were beginning to appreciate the tomato, and 'Bengalis and Burmans to use it in their sour curries'.[57e] The tomato (tomatl in the Nahua tongue of Mexico) seems to have originated either in Mexico or Peru, and great morphological variation exists between the forms in Mexico, Central America and coastal Peru.[2d] The tomato was well diversified when Europeans reached the New World, and from just one sub-species is believed to have sprung the four common varieties of the tomato *Lycopersicon lycopersicum*, namely the common, cherry, large-leaved and pear tomatoes.[31q]

The tomato reached Europe in AD 1550, and was first adopted in Italy as an excellent partner to pasta dishes. Because of its relationship to poisonous plants like the belladonna and mandrake, its acceptance in England was slow; this was not helped by the name love-apple, with aphrodisiac connotations, that became attached to it.[390] Unlike several other plants from the New World, the tomato did not come directly to India, but by way of England at a late but uncertain date, perhaps around 1850.

tools, prehistoric The Palaeolithic period in the evolution of civilization started about 250,000 years ago and lasted a long time, to be succeeded in about 10,000 BC by the brief Mesolithic period, and from about 7500 to 2000 BC by the Neolithic or new stone age. Each was characterized by man-made tools of increasing sophistication and diversity.

Some thirty sites of the Palaeolithic age have been discovered all over India. Early tools here take the form of what are called cleavers and hand-axes, which are massive stones used to club down animals.[391,392] Gujarat is especially rich in such tools, probably because there was a land bridge with the African land-

mass before the sea level rose in the last warm period after a glacial age. Tools of the next period consist mostly of pointed oval-shaped stones of various kinds, which were used as axes, spears, scrapers and knives.[393] In both these phases, the kinds of tools suggest that while man must have been a vegetarian in the simian phase (as apes still are), meat has now found a place in his diet. In the Neolithic stage, the tools become more finished and polished.[394] Flakes are chipped off from a pebble singly to give a single sharp edge, or repeatedly to give a serrated one. Hand-axes are now pear-shaped or oval, up to even an arm in length, and cleavers are similar but oblong in shape, with a long chisel edge. Such tools, found all over the country, connote an essentially meat diet. But some tools are clearly meant for digging, probably for food articles like roots and tubers. Besides these foods, natural items like honey, berries, fruits and nuts were eaten.

The next step in tool evolution took the form of small, sharp stone flakes called microliths, which have been found in particularly large numbers in southern and western coastal India after about 7500 BC. These were small chips struck off from rocks of fine-grained stones like jasper, agate, flint and crystal.[395] Microliths could be affixed with resins to an arrow to greatly increase hunting skills, to lances, and to spears for fishing. Affixed to wooden handles, microliths were made into scrapers, scythes and knives, which gave a new dimension to the gathering and processing of vegetable foods. From a food hunter, man, through the refinement of tools, became a food gatherer and agriculturist.

A special development in south India around 4000 BC was the tēri or sand-dune fishing culture of the sea coasts, which used microliths extensively.[379b,396] Rather later came another unusual development in the south, the megalithic culture of about 750 BC, which lasted about a century, and saw the wide use of iron tools (much before anywhere else in India) for agriculture, and perhaps also to put up the huge stone structures of uncertain import called megaliths.

Fires created spontaneously by friction may have led quite early on to the roasting of meat for use as food by man. The concept of boiling came much later, and the first clay boiling pot is dated only around 7000 BC.[200] Once copper, then bronze and finally iron were discovered after 2500 BC, ushering in the Chalcolithic age, the way was open for tools to be specifically designed for man's use (*see* utensils).

toothpicks At the Nalanda monastery in the fifth century AD, the Chinese pilgrim I Ching was given tooth sticks after every meal, and he later exhorted his countrymen in his writings to rinse the mouth after a meal, then chew tooth wood and cleanse the tongue and teeth.[152b] In *c.* AD 1000,

after dining, King Shrenika[6k] cleaned his teeth with tooth sticks and fragrant powder, then washed his hands with water and fragrant powder. The *Shivatattvaratnākara* [51] written by King Basavaraja of Keladi, in *c.* AD 1700, mentions that small toothpicks, called vati and ghutika, were made from pichumani wood, or from bamboo, grass or metals. To make scented toothpicks, the slivers were marinated in bovine urine mixed with the powder of the haritaki myrobalan (*Terminalia chebula*) for a week, then immersed in scented water, smeared with spices and flavours, and dried.

tortoise, turtle Tortoise shell was an export item to Europe noted in the Tamil literature of the early Christian era,[135] and its flesh was relished, we are told, by the Meenavar or fishermen.[101] Charaka[24] lists tortoise meat as edible, and Sushrutha[33] rates it highly. It is also extolled in an Assamese work, the *Kāmarūpa Yatra*[115] of AD 600–800, along with the meat of the duck, pigeon and wild boar. The twelfth-century *Mānasollāsa* written by King Someshwara refers to roasted tortoise.[49]

tubers Tubers come under the class of uncultivated foods, and hence are permitted to ascetics and people who have taken a vow or are fasting. Charaka terms roots mūla, and bulbous tubers kanda.[24] Old Tamil literature echoes these in words like mūlam and kandam, and others like vem, shadai, shivai and thuri.[69] Tubers are particularly abundant in wet terrain, such as Bengal, Assam and Kerala, where they are cooked as vegetables, or along with greens or meat. In health terms, tubers are sweet and heavy, providing energy and building up tissues.[34] They depress vata and kapha. Yams are rated the best among tubers; they improve digestion, whereas sweet potatoes are hard to digest[325] (*see* aroids; yams; individual tubers).

turkey The turkey originated from wild forms in Mexico,[147] from where it was taken to England. Here it was given the name turkey in error for some large eastern bird, such as the peacock or guinea fowl.[1n] It became the accepted item for a traditional Christmas lunch, and for this purpose the turkey was brought by the colonial to India. It was never very successful here, and was often replaced by the peacock, which in one view 'combines the flavour of the pheasant with the juiciness of the turkey', besides having a meat of an attractive white colour.[336] A traditional Thanksgiving meal in America, on the fourth Thursday of every November, would include the indigenous turkey.

turmeric *Curcuma longa* is an ancient yellow rhizome, probably native to India. It is a triploid (2n = 42), but various polyploids (2n = 32, 62, 64, etc.) have been recorded, and even the basic chromosome number is not known.[7a, 398] Its striking orange-yellow colour and dyeing ability soon gave the turmeric root

an important place in magic, ritual and cuisine in India. Its name in Sanskrit, haridra (haldi in Hindi) has an aboriginal connotation. The *Yajurveda* mentions a community of despised nishādas (nisha = turmeric, ad= to eat), comprising people in such low occupations as svānin (dog keepers), chandāla (dog eaters) and punjistha (fowlers).[311] Old Tamil literature also has numerous references to turmeric as manjal, a word that came to be also used for the sacred orange colour of the spice.

Turmeric in the Hindu view is a highly auspicious material, whose use is banned in a house of mourning. It is considered auspicious to apply it on the face of a bride, and many women apply turmeric paste as a depilatory and to ensure a smooth, shining skin. Xuan Zang notes of Indians: 'Every time they perform the functions of nature they wash their bodies and use perfumes of turmeric and sandal-wood.'[319] Jains do not permit the use of fresh green turmeric, since it is an underground product liable to harbour life forms.

In cooking, turmeric powder is almost an indispensable part of the mixed curry powders that are freshly ground using a roller and flat slab. It is used in the cooking of vegetables, meat and fish to impart both colour and a slight sharp taste and flavour. In health terms turmeric is tikta (bitter) but also pungent and astringent, dry, light and keen.[325] Medicinally it is warming, a good stomach and appetite regulator; boiled in hot milk, it helps cure sore throats, colds, coughs and chills.[34]

U

Unāni medicine The Unāni (or Greek) system of medicine owes its origin to Hippocrates (460–377 BC), but was later extensively developed by Arab doctors.[399] Al-Razi dealt in detail with smallpox and measles, and Al-Majusi with dietetics and materia medica; prominent among writers was Ibn Sina (Latinized to Avi-cenna), whose book *Al-Quandom*, written in about AD 1025, deals extensively with both physiological and psychological matters.[400]

Unāni medicine is based on the Hippocratic theory that a perfect balance between the elements (arkhan), humours (akhlat) and temperament (mizaj) is necessary for good health.[399] Every individual has inherent powers of self-preservation, called quwat-e-modabira. The four humours present in the human body are dum (blood and other red body fluids), balgham (phlegm and other colourless fluids), safra (yellow fluids like bile) and saoda (black bile and other black fluids). The preponderance of these humours determines an individual's temperament or mizaj, which could be of four kinds: damvi (sanguine or plethoric), safravi (choleric or bilious),

balghami (cold or phlegmatic) and saodavi (melancholic).[399]

In diagnosis, the pulse (nabz) is extensively employed, besides an examination of the urine (baul) and stool (barāz).[399] In examining the pulse, numerous aspects are looked for, like volume, tension, blood volume, pattern of movement, rest, rhythm, irregularity and so on. Treatment for simple diseases is mainly through diet in the initial stages, followed by the administration of a single drug, failing which compound preparations may be administered. Each drug is placed under four categories, based on potency and efficacy.

There are four treatment therapies employed in Unāni medicine. These are regimental therapy (venasection, diuresis, Turkish bath, massage, purging, exercise and so on); pharmaco-therapy (use of herbal, animal and mineral drugs); surgery; and dieto-therapy (quantity and quality of food).[399] Thus for diabetes, several bitter and astringent items (stones of the jamoon fruit, phālsa fruit, bittergourd juice, tender neem shoots, bilva leaves and cottonseed kernels) are prescribed.[401] Incompatible combinations, which should never be taken together, are rice and water-melon, rice and sattu (flour of parched rice), pomegranate and hareesa (ground wheat and meat), and fish and milk.[401]

urad The black gram, urad, is botanically *Vigna mungo*; the Sanskrit term, māsha, is probably of even earlier Munda origin. It is one of the three Ms of Sanskrit literature from the *Yajurveda* onwards, the others being mudga (mung) and masūra (masoor). The Buddha endorsed all the three Ms for regular use,[25A] and the *Brhadāranyaka Samhitā* includes it as one of 'the ten food-grains'.[348] Urad is thought to be indigenous to India, and shares a common ancestor with mung.[294c] The pulse has been found around 1500 BC in archaeological excavations at Navdatoli and Daulatapur.[32a]

Historical literature indicates a wide range of usage. One of these, from the very start, is as a pulse accompaniment to rice,[359] a practice now confined to the north. In the south it has other outlets. An early form of the idli described by Chavundaraya in AD 1025[261] was made by soaking ground urad in buttermilk, grinding it again to a fine paste with spices, and finally deep-frying the shaped masses. A century later, the *Mānasollāsa*[49] written by King Someshwara has essentially the same recipe (*see* idli). Even the kadubu (q.v.) of the Karnataka area is thus described by Terekanambi Bommarasa in AD 1485:[67b] 'The kings are relishing the kadubu made of black gram ... (it was) attractive to the eye and pleasing to the mind.' Thus both the idli and kadubu were then products based entirely on urad dhāl, whereas today, to make both, a mixture of two parts of rice grits and one part of urad are ground and fermented together overnight, after which a thicker batter serves to make

the steamed idli, and a thinner one the pan-fried dōsai. In fact it is puzzling that the urad, or ulundu in Tamil, so important an ingredient in these common breakfast items, is hardly even mentioned in old Tamil Sangam literature (q.v.).

Urad has always been the pulse of choice for making pāpads and vadās. The *Mānasollāsa* mentions a crisp-fried snack called gharika.[137] Old Gujarathi literature[186] describes an urad vadā with holes in it that was fried to a deep brown shade, and in Bengal, a meal served to the mystic Chaitanya by his admirer Sarvabhauma included a boda of urad.[73] The current medhu- or uddina-vadā of the Karnataka area is a disc with a hole in the centre, soft and elastic inside and crispy brown on the surface; when soaked in curd the dahi-vadā (q.v.) is obtained, with a salty spicing of the curd base in south India, and a sweet touch in the west and north. A rice batter with some urad, when deep fried, yields the crisp coiled murukku and chakli, crunchy seedai marbles, and bōnda balls. Almost pure urad flour, with just a little rice as a binder, yields the crisp jilēbi (q.v.), which is later soaked in sugar syrup. Roasted urad dhāl grits give textural variety to an uppuma, and to red chilli-based molaga-podi, eaten with a little oil poured on it as an accompaniment to the idli. A sweet laddu of urad figures in a Gujarathi work of AD 1520, the *Varanaka Samuchaya*.[136]

utensils *See* cooking.

V

vadā Termed vataka, the vadā is fully described even in the *Dharma Sutrās* (800–300 BC) as soaked, coarsely ground and fermented pulses (especially māsha or urad), fashioned into various shapes, and deep-fried in ghee.[6b] Patanjali (second century BC) notes a special vatakini Paurnamāsi day, when only this item was eaten.[374] The *Apabrahmasatrāyi* (*c.* AD 1000) mentions vatakas of several kinds dipped in milk and curd, perhaps the first reference to the current dahi-vadā.[6k] The *Mānasollāsa* (twelfth century AD) describes fermented urad vatakas, soaked either in milk to give kshīravataka, or in sour rice water, kānjika.[261] Kannada literature mentions a chana vadē in AD 1025;[261] urad-based products were served at a domestic meal (Annaji, AD 1600); and in AD 1606, both a sukhin-vadē (today a rice-banana-jaggery deep-fried product) and a vadē of colocasia leaves were served.[67b] The Gujarathi work *Varunaka Samuchaya*,[136] written in AD 1520, has a rather jumbled list of pulse-based items, in which may be discerned a mirchi-na-vadā, magna (mung) and kulattha (horsegram) vadās, and a kānji-vadā. While several pulses may be used to make a vadā, urad remains a favourite; the uddina- (or medhu-) vadē of the present in Karnataka, soft inside and crunchy outside, is excellent for eating as

such, or after soaking it in curds flavoured with salt, green ginger and coriander leaves. The vadā of Hindi is termed vadē in Karnataka and vadāi or vadam in Tamil Nadu.

varagu *See* kodo millet.

vata One of the three dōshas (q.v.) or temperaments, which in ayurvedic theory is a combination of the elements air and ether. These elements give vata the quality of mobility or movement in space, both in the universe and within man.[34] It is responsible for perception, assimilation and reaction, converting sensory experience to psychosomatic reactions. Sushrutha describes vata as the driving force that keeps everything going, but also as the main cause of disruption. Vaghbhata describes a vata temperament as one of instability in thought and action. Dry and cold are the two important vata characteristics, for which a diet of grain, fruit, milk and meat broth is best suited; pungent, bitter and astringent foods such as pulses, hot spices, tea and coffee are best avoided. The seat of disturbed vata is frequently the colon[34] (*see* kapha; pitta).

Vedas *See* Sanskrit literature.

vegetables The major foodgrains are those raised by the plough, namely cereals, pulses and oilseeds, and hence references to agriculture in Sanskrit Vedic literature are mainly to these foodgrains,[14] and indeed especially to rice. We do learn however that supplementary foods were raised on the outskirts of villages. Banks of rivers, 'beaten by foam', were considered suitable for growing pumpkins and gourds. Vegetable root crops were raised in the vicinity of wells. Low grounds, like the moist beds of lakes, were suitable for leafy crops. Marginal furrows between rows of other crops were recommended for planting fragrant plants and medicinal herbs.[216]

The collective term for vegetables was shāka, which comprised six kinds.[51] These were ripened vegetables, leaves, tubers, roots, flowers and pods (shimbi). Of these, there are other entries in this volume under green leafy vegetables; aroids; and melons, pumpkins and gourds. It is mainly the fruit-type of vegetables that are discussed here, with some excursions where called for.

The first vegetables mentioned in the *Rigveda* are the lotus stem (visa), and the cucumber (urvāruka). The later *Vedas* refer to several others, like lotus roots (shāluka), the bottlegourd (alabu), the water-chestnut (saphaka, mulāli), two other aquatic plants (avakā and andika), and the bittergourd (karivrnta, later karavella). Uncooked shāka were cooked to give products termed bhāji and shrāno.[6a,6b] The Buddhist and Jain canonical literature[6c] refers to yams (āluka), two convolvulus roots (etāluka and kadambu), and several leafy vegetables (*see* green leafy vegetables). Kautilya in his *Arthashāstra* refers to the rājdhāna or ksiri (now kauki, *Manilkara kauki*) and to the cucumber as chidbhita.[16] The *Rāmāyana* speaks of the sūrana or

elephant yam (vajrakanda), the pindāluka (possibly the sweet potato), the bottlegourd (kālasāku), the sleshmataka and lasora (both *Cordia* species that bear fruits which can be cooked or pickled), karira (*Capparis decidua*, with edible sour berries), and sudarshana or vrspani (unidentified).[6e] Medical literature refers to the patola (parwal) and vartaka (brinjal), which are praised as good vegetables.[6f] Early Tamil literature has references to brinjals and bittergourd (pāgal), unripe bananas, and a variety of tubers (q.v.).[69,101]

After AD 1500, several new vegetables came in from Mexico and South America through the efforts of the Portuguese and Spanish (*see* Mexico, food from). These included some vegetables that greatly influenced Indian food, namely the tomato, potato, tapioca and capsicum, one of several forms of the chilli. Also, with colonialism came temperate European vegetables like the cabbage, cauliflower, lettuce, long orange carrots (which differ from the indigenous variety; *see* carrot), French or sword beans, haricot or navy beans (rājmah), and, quite recently, the winged bean. (Separate entries may be referred to for several of these.)

In ayurvedic terms, many of the fruit-type of vegetables are sweet. Most of them (gourds, brinjal, cucumber, radish) reduce pitta and kapha, with mixed reactions on vata (depressed by ash gourd, snake gourd and cucumber, aggravated by the bottlegourd, ridge gourd and large radish).[325] Specific vegetables are recommended for specific symptoms. Thus the ash gourd, bittergourd, peas and radish all purify the blood, but have different reactions. The brinjal is strength-giving and a heart tonic, and the bittergourd is a laxative that also increases the appetite; the brinjal is not recommended in a cough, fever or lethargy, in all of which the bittergourd is useful. The snake gourd is appetizing, strength-giving and very useful in tuberculosis.[325]

Examples of the ways in which vegetables can be cooked can be drawn from Sanskrit and other literatures, and from current cuisines. In the Aryan view, vegetables were not anna or cultivated grains, but phala. They had to be washed in the home to render them of sufficient rank to enter the cooking area. In fact, when recovering from childbirth, the new mother could not enter the cooking area for fear of pollution, but could, for a few months, undertake to peel and cut phala elsewhere.

Vegetable preparations are hardly ever described in Sanskrit literature. A late reference is to a small cucumber, chirbhita, which was cut into pieces, dried and fried to constitute a delicacy.[6h] The *Mānasollāsa* uses the generic term pudē for a delicacy of mixed fried vegetables folded into a turmeric leaf and then steamed; one example of such a filling was brinjal fried with rice grits and

chopped onion. A bartha (mash) of brinjal was termed bāji. Palidhya was a class of spiced vegetables cooked in curd and then given a baghār seasoning.[49] Both brinjal bartha and palidhya also feature in a Kannada work of AD 1485.[67b] Chavundaraya's *Lokōpakāra*[261] mentions thirty-one vegetables in one chapter on cooking, and Mangarasa's *Sūpa Shāstra* has a long chapter on the cooking of vegetables.[67a] Chapter 8 of the *Lingapurāna* written by Gurulinga Desika (AD 1594) is a long one, and numerous ways of cooking each of a dozen vegetables are outlined.[67b] The example of brinjals may be cited. They could be seasoned with ghee, salt, urad and cream before being boiled, or roasted in ghee, spiced, placed on live coals and made into bāji (bartha). Or brinjals could be cut into small pieces and cooked with jaggery. And for this, there were so many types of brinjals! To take the bittergourd next, it was always first debittered with salt water and washed. Thereafter it could be stuffed with a favourite masāla, tied together with string, and cooked or fried in ghee. It could be cooked with jaggery syrup, or cut into rounds and cooked with salt. Or the debittered bittergourds could be stuffed and flavoured whole before cooking, or cooked with masāla in a spicy juice in which the product would float.[67b] Tubers and greens were frequently cooked in milk,[261] a practice not followed today. Melōgaras (q.v.) were composite dishes of dhāls and green leafy vegetables, in which vegetables like drumsticks or elephant yam could be introduced.[261] Vegetables like the cucumber and radish could be used in curd-based relishes with names like kacchadi, pacchadi, palidhya, thāmbūli and rāyatha. Even ash gourd skin peelings were soaked in curd, dried, spiced and deep-fried to give the crisp relish, bālaka, described as early as in AD 1200.[67b]

Current cuisines show considerable variety in the use of vegetables. The sāmbhārs of Tamil Nadu and Kerala based on thuvar dhāl employ soft vegetables like brinjals, lady's finger, drumsticks, gourds and yams. The distinctive aviyal of Kerala employs green bananas, drumsticks, various beans and the like cooked in coconut milk and then tossed with coconut oil in spiced sour curd. Kālan is a similar dish that uses only green bananas, and ōlan is a dish of ash gourd and dried beans cooked again in coconut milk and coconut oil. Small pieces of ash gourd or raw mango cooked with coconut, curds and chilli paste is called pulisseri. Erisseri is a similar preparation from pumpkin. Kootu is a dish of various mixed vegetables. Thōran is usually made from payaru (lōbia) cut into small bits, stir-fried in oil and finally cooked in a little water. Green bananas, spinach, cabbage and peas can all be cooked in this way.

Bengali food has innovative vegetable combinations, like pump-

kin with climbing spinach (puin), gourds with whole chana, and sponge gourd with poppy seeds. Raw jackfruit, tender drumsticks, parwal and tubers are imaginatively cooked, and even peelings of potato and pumpkin are utilized. The bitter shukto item can contain bittergourd, neem leaves, brinjals, potatoes, radish and green bananas, along with turmeric, ginger, mustard and rādhuni (celery seed) in the form of ground pastes. Dalna is a dish of delicately spiced vegetables; fried vegetables are bhāja, boiled vegetables bhātē and spiced vegetables ghonto. Flowers of the pumpkin and banana are eaten, as is the pith of the banana (called thōd). Gujarat has a handva or mixed vegetable stew, often served with steamed bēsan cakes placed on top. From this dish has sprung the Parsi ōberu, to which meat may sometimes be added. The sun-drying of several vegetables, berries and greens for year-round storage and cooking is characteristic of arid Rajasthan (*see also* individual vegetables).

vegetarianism About a quarter of the population of India is reckoned on census data to be vegetarian. The states with a high proportion of vegetarians (shown as percentages) are Gujarat (69), Rajasthan (60), Punjab-Haryana (54) and Uttar Pradesh (50). At medium-high levels are Madhya Pradesh (45), Karnataka (34), and Maharashtra (30). Medium-low levels prevail in Tamil Nadu (21), Andhra Pradesh (16) and Assam (15), and low vegetarian levels (6 each) in Kerala, Orissa and West Bengal. Part of this vegetarianism is economic in origin, since animal foods are comparatively expensive. But a more compelling force is the ethical one against the consumption of food that necessitates the taking of life. Such perceptions have a long history in India.

The early Aryans ate meat of many kinds, over fifty being listed in the *Vedas* as fit for sacrifice, which was always a prelude to their being consumed (*see* meat consumption).[6a] The cow, because of its utility and being practically a household pet, was especially an object of concern right from the very start (*see* beef). Prohibitions, starting with various members of the bovine species, gradually begin to be expressed in the *Sūtra* literature.[6b] Thus the *Manusmriti* (*c.* 200 BC), a veritable code of living, has formidable lists of forbidden meats in no less than fifty-four chapters.[402]

It has been said that this battle against Vedic animal sacrifices was really won by the Buddhists and the Jains. The Buddha was strongly opposed to ritual sacrifices as a means of personal salvation practised by the brahmins,[25A] but he allowed Buddhist monks to consume cooked meat if it was given to them as alms. His contemporary Mahavira, the 24th thīrthankara of the Jain community, went much further.[138] Not only did the question of killing an animal for food simply not arise, but great care

was taken to ensure that even unseen but potential forms of life were spared. Only food that was 'absolutely innocent' was permitted, and the prohibitions included 22 unsuitable things and another 32 with life potential (*see* Jains, food of). These feelings found a responsive echo among the people, to which weight was added by the edicts of Emperor Ashoka, a devout Buddhist. Brahmin priests were obliged to follow suit, and influential reformers like Shankara, Madhva and Ramanuja altered the sacrifices by substituting, for the animal head, objects like coconuts and pumpkins smeared with vermilion powder.

Brahmins in India in general are vegetarian, with the exception of those in Kashmir (q.v.) and Bengal (q.v.), and the Saraswaths of Karnataka, who are believed to hail from Kashmir. Followers of Vishnu, even in Bengal, are always vegetarian, as are Jains and Buddhists. Some communities follow vegetarian habits as a means of gaining social esteem, others from genuine conviction. Quite frequently an older person seeking spiritual serenity will give up eating meat. Being a vegetarian occasions little surprise in India. And even as long ago as in 1000 BC, so extensive was the range of cereals, pulses, oilseeds, vegetables, fruit, milk, condiments, spices and sweetening agents available, that vegetarian meals of high nutritional quality, and with gustatory and aesthetic appeal, could be fashioned. Perhaps nowhere else in the world except in India would it have been possible 3000 years ago to be a strict vegetarian.

venison *See* deer.

vinegar Shuktha and ambila in Sanskrit (in Hindi, shirka) is first mentioned in early Buddhist literature.[6c] Sugar and wheat were added to buttermilk in a jar, which when kept warm in respiring grain yielded vinegar. Sushrutha has a class of preparations called asūta, which are vegetables like gourds and radish preserved in vinegar.[6f] Dalhana (*c.* AD 1100) in his commentary on the *Sushrutha Samhitā*, mentions jaggery, sugarcane juice and honey as sources of vinegar.[6h] Vinegar came to be used mainly in medicine by the Hindus, and in both medicine and cooking by the Muslims.[2m]

In colonial times, a variety of materials were used to make vinegar in different locations, like jaggery, sugar, grapes, raisins, jamoon fruit, the sap of the palmyra palm, and mahua flowers.[119a] These were stored underground in loosely covered jars for about six months, and then decanted or filtered. A quick-fermentation outfit was devised in the 1930s, in which the fermentation was carried out continuously in sections, after first charging the unit with enzymes from an earlier batch.[119a] Vinegar has a special place in the cuisine developed by Portuguese monks in Goa, in such dishes as pork vindāloo, sorpotel, and prawn balchão (*see* Goa, food of).

visitors to India From very early

times, visitors to India left vivid records of India and her food and customs. These have frequently been referred to in this historical dictionary, and for convenience, a list now follows of these writers arranged chronologically according to their country.

Dates given after each name are followed by either S (period of stay in India) or L (lifespan). An asterisk placed before the name refers to writings with an exceptional degree of information concerning food in India.

Greece

Scylax of Charybanda, 510 BC (S)
Herodotus 484–431 BC (L)
Ktesias 416–358 BC (L)
Alexander 327–325 BC (S)
Nearchos of Crete 327–325 BC (S)
Onesikritos 327–325 BC (S)
Seleukos Nikator 327–325 BC and 306 BC
* Megasthenes 305–302 BC (S)
Apollonius of Tyana 295 BC–? (L)
Diodorus Sicilus *c.* 85 BC–15 BC (L)
Strabo of Amnesia 65 BC–AD 25 (L)
Quentin Curtius-Rufus *c.* 30 BC–AD 30 (L)

All succeeding dates are in years AD

Pliny the Elder, 23–59 (L)
* Anonymous author, *Periplus Maris Erythraei c.* 50 (S)
Aelianus Tacitus (Aelian) 80–140 (L)
Flavinus Arrianus (Arrian) 96–160 (L)
Athenaios 3rd century (L)
Marcus Junianus Justinus (Justin), 3rd century (L)

China

* Fa Xian 399–414 (S)
* Xuan Zang 629–645 (S)
* I Ching 671–695 (S)
Ma Huan 1406 (S)

Arabia

Ibn Khordadbah, died 911
Al-Masudi 915–916 (S)
Ibn-Haukal 950 (S)
* Al-Biruni 1017–1030 (S)
Al-Idrisi *c.* 1140 (S)
Amir Khusrau 1253–1325 (S)
* Ibn Battuta 1325–1354 (S)
Abdur Razzak 1470 (S)

Early Europeans

John of Monte Corvino (Italy) 1292 (S)
Marco Polo (Italy) 1294 (S)
Odoric of Pordenone (Italy) 1316–1330 (S)
Friar Jordanus (France) 1328 (S)
Giovanni di Marignolli (Italy) 1357–1358 (S)
Hans Schiltberger (Germany) 1410 (S)
Afanasy Nikhitin (Russia) 1466–1472 (S)
Vasco da Gama (Portugal) 1498–1524 (3 visits)

Visitors to Vijayanagar

Nicolo dei Conti (Italy) 1420 (S)
* Ludovico di Varthema (Italy) 1503–1508 (S)
Duarte Barbosa (Portugal) *c.* 1518 (S)
* Domingo Paes (Portugal) 1518–1524 (S)
Fernão Nuniz (Portugal) 1536–1540 (S)

Later Europeans

* Garcia da Orta (Portugal) 1534–1569 (S)
St Francis Xavier (Spain) 1538–1546 (S)
* John Huygen van Linschoten (Holland) *c.* 1596 (S, 6 years)
Henrique Henriques (France) } second half of the 16th century
Goncalves Rodrigues (Portugal) } second half of the 16th century
Father Frois (France) } second half of the 16th century
Michael Pinheiro (Portugal) } second half of the 16th century
Pedro Texeira (Portugal) } second half of the 16th century
* Father Antonio Monserrate (France) 1580–1600 (S)
Thomas Stevens (England) 1579–1619 (S)
Ralph Fitch (England) 1583–1591 (S)
William Finch (England) 1608–1611 (S)
Thomas Coryat (England) 1612–1617 (S)
Pietro Delle Valle (Italy) 1614–1626 (S)
Sir Thomas Roe (England) 1615–1619 (S)
* Rev. Edward Terry (England) 1615–1619 (S)
Peter Mundy (England) 1628–1634 (S)
Francisco Pelsaert (Holland) 1621–1627 (S)
Joannes de Laet (Holland) 1593–1649 (L)
Father Sebastian Manrique (France) 1628–1641 (S)
Albert de Mendelslo (Holland) 1638 (S)
Jean-Baptiste Tavernier (France) 1640–1667 (6 visits)
* Francois Bernier (France) 1656–1668 (S)
* Niccolao Manucci (Italy) 1654–1714 (S)
Jean de Thevenot (France) 1665–1667 (S)
John Fryer (England) 1672–1681 (S)
* John Ovington (England) 1689 (S)
* George Rumphius (Holland), died 1693
* Heinrich van Rheede (Holland) 1680–1700 (S)

W

wādi The other names for this snack are vati and bari. The *Mānasollāsa* of the twelfth century AD describes them as balls of urad dhāl, ground to a paste and allowed to ferment naturally for a few days, and then deep-fried to crispness.[49] Early Gujarathi literature refers to the same item as vatika,[186] and also notes that the balls after fermentation can be dried and stored for use when needed. A century ago, wadi or bari was noted among the foods of Bihar,[285] and indeed it is popular all over north India. The pakoda of south India is similar, but is not fermented; it is made of a thick batter of bēsan or mung dhāl flour, and irregularly-shaped lumps are deep-fried, with rings of onion sometimes included in the batter.

walnut Though said to be indigenous to south-eastern Europe and China,[7a] the walnut (Sanskrit akshota, Hindi

akrot, botanically *Juglans regia*), is a naturalized fruit all along the Himalayan range from Afghanistan to Bhutan.[2n''] India and the Old World share the same delicate-tasting, oily walnut, but America has an indigenous black walnut, *Juglans nigra*, with a kernel of strong flavour tightly embedded in the shell.[7a]

water Water is required for agriculture, and domestically for bathing and cooking.

Found in vast numbers at Mohenjodaro were roughly made pottery jars with deep grooves round the middle, which are believed to have been fixed on water-wheels for raising water from rivers to the surface.[229b] In Vedic times these water-wheels were called ashmanchakra and araghatta.[11] The true Persian wheel with a bucket chain and pin-driven gear came to India much later, in the fourth century AD according to some authorities[27] and in the tenth century AD according to others.[17Bb] A solid circular stone with a hole in the centre found in Mohenjodaro and Lothal may be a stone pulley, mounted above wells for drawing up water using buckets at the end of a long rope. In later Vedic literature this is referred to as ghatayantra, and irrigation systems which used such water were in extensive use (*see* agriculture).

Water for drinking was always given careful attention. Nine sources (rainwater, well water, spring water, etc.) were recognized.[51] Condensed atmospheric water was rated the best to drink, and in fact the best of all drinks, and the next best was water collected from porous soil.[24] Cleanly collected rainwater was filtered and stored in a container of gold or silver, or a boiled clay pot.[24] Water meant for drinking had to be boiled, exposed to sunlight and then filtered through charcoal.[77] Either a piece of hot copper was placed in it, or the water was stored in copper vessels.[200] Water for drinking was sometimes perfumed with the petals of the pātala (*Stereospermum sauveolens*)[77] or the lotus. The lotus was in fact frequently grown in tanks to purify the surrounding water.[11] Buddhist texts enjoin the use of pure rainwater for drinking,[6c] but a strainer (parishrāvana) was an essential requirement for every monk. Jains, with their overpowering compulsion to abstain from causing injury, are obliged to boil water every six hours, and to strain it through a cloth before drinking.[68]

Visitors to Vijayanagar in the sixteenth century noted that 'the king drinks water which they bring to him from a spring ... and the vessels in which they drew water come covered and sealed' (Fernao Nuniz).[298] In Akbar's kitchen, 'for the cooking of food rainwater or water taken from the Jamuna and Chenab is used, mixed with a little Ganges water ... His Majesty appoints experienced men as water tasters'.[28] Indeed the use of Ganges water (q.v.) was something of a fetish with Muhammad bin Tughlak and the Mughal emperors,

including Aurangzeb.

In the Hindu ethos, water has a special place. Water must never be sipped from a tumbler, but poured into the mouth from above after tilting back the head, since one's own saliva on the rim of the glass would be polluting. Water used for rinsing the mouth cannot be swallowed, but must be cast out. Vegetables cannot enter the cooking area till they have been ritually washed to render them of sufficient rank. Prior to starting a meal, a few drops of water would be sprinkled on the leaf for purification. Water-sprinkling is indeed a part of temple ritual; it precedes a penance, and even sanctifies a corpse. A bath should never be taken in a small quantity of standing water; it had perforce to be in flowing water, or by pouring water from a bucket over oneself with a mug.

The time-honoured method of cooling water, which doubtless also achieved some microbial purification, was to stand it in new, really porous clay jars for evaporative cooling from the outer surface. In the *Harshacharita* written in the seventh century AD,[236] whey to be used as a gargle by the king's dying father is kept 'in a new vessel besmeared with wet clay'. According to Abul Fazl,[28] it was Akbar who introduced the use of saltpetre for cooling water. The French traveller Francois Bernier, noted around AD 1665 that 'the higher sorts of people' cooled Ganges water by pouring it into 'tiny flagons, which for the space of seven or eight minutes were placed in water into which three or four handfuls of saltpetre had been thrown'. In the eighteenth century in British India, 'every family had its ābdār, the servant who stayed up all night constantly moving an earthenware jug of water in a larger vessel containing saltpetre and water, which produced a chilled liquid by morning'.[237b] Ice brought from the mountains was also resorted to for cooling water by Mughal rulers (*see* ice).

watercress This is *Nasturtium officinale*, in Sanskrit mandukaparni, in Hindi chanchu or chandrasūr, which is first mentioned in *Sūtra* literature (800–300 BC),[6b] and appears in medical literature as a material which intensifies or accelerates the body metabolism.[34]

waterpots From the start, the shapes of natural objects like pumpkins and gourds were the inspiration for Indian waterpots.[175] These were then adapted to functional requirements, either for balancing on the head, for carrying on the hip, or for storage in the kitchen.

The Indus Valley had a heavy copper kumbha, probably meant for fetching water,[217] and a lōta-shaped vessel with a long spout rising from the base,[74] suggesting a pouring function. Among the vessels used for Vedic sacrifices is the ninhaya, an earthen waterpot buried in the ground for keeping water cool.[66] Another functional water vessel is the bhrngāra with crossed straps,

which every Buddhist monk is expected to carry.[6c] Old Tamil literature mentions versatile waterpots like the kallam and kundam. Pots were suspended from the roof in a rope sling (shimili) or kept in stands called pattadai, shumudu or shummadu.[69,86]

The design of pots was governed by functionality. Thus all carrying waterpots would have narrow mouths to prevent spillage. A pot for carrying water on the head would not need to have a neck, nor would a kitchen storage vessel. But a waterpot to be carried on the curve of the hip would need a neck to be embraced by the curve of the arm, as in carrying a child.[175] Waterpots were expected to be placed in a line on the west side of a kitchen, according to the *Shivatattvaratnākara*.[51]

weights, measures and lengths All later Indian systems of mensuration seem to have originated in the Indus Valley civilization. Beautifully polished and accurate stone cubical weights have been found all over the vast area.[249a] They are in two series; these were once thought to be respectively binary and decimal, but now both are believed to be connected to the weight of the rati, a small black seed with a red spot, *Abrus precatorius*, also called gunji or krsnala, which averages 109 milligrams in weight.[251b] One series of weights had a base of 12 ratis or 1.2184 grams, and the other of 8 ratis or 0.871 grams, and each had multiples of the series 1, 2, 5, 10, 20, 50, 100, 200, 500, etc.

Another series of weights in the form of truncated prisms was also found at Lothal.[251b] While still related to the basic weight of 1.2184 grams, these were in the ratios 7 by 2/7/14/28. They appear to have been related to the Assyrian shekel of the time, and were perhaps employed in sea-borne trade.[251b] The largest weight found in the Indus Valley had a mass of 10.97 kg.[249a]

Later mensuration systems for coins used weights even lower than that of the rati, like natural food-grains. The system recorded in the *Manusmriti*,[16,317] which stayed in use for two millennia, read thus:

Natural weights

1 pepper seed (likya) = 1 black mustard seed
3 black mustard seeds = 1 white mustard seed
6 white mustard seeds = 1 middle-sized barley corn
3 barley corns = 1 krsnala or rati

Copper weights

80 ratis = 1 karshapana

Silver weights

2 ratis = 1 māsha
16 māshas = 1 dharana
10 dharanas = 1 shatamana

Gold weights

5 ratis = 1 māsha
16 māshas = 1 suvarna
4 suvarnas = 1 palā or mishka
10 palās = 1 dharana

Even today goldsmiths use rati seeds for weighing. In the Vijayanagar empire in about AD 1508, Varthema remarks that the scales and weights in use were so small and delicate that even a hair would turn them.[21c] The palā, in use till very recently, was thus the weight of 320 ratis (34.88 grams), a binary-decimal combination.[403] In colonial times, weights in common use were the tōla (96 ratis), the seer (80 tolas) and the maund (40 seers or 37.32 kg).

An ivory scale found at Lothal showed linear markings measuring 1.704 millimetres. The angula of the *Arthashāstra* measured almost exactly ten of these, and the linear mensuration table stood as follows:[167h]

8 yava (barley corns) = 1 angula (a finger's breadth)
12 angulas = 1 vitasti
2 vitastis = 1 hasta or aratni
4 hastas = 1 danda (rod)
2000 dandas = 1 krosa (distance of a cry)
4 krosas = 1 yojana (a travel stage)

The *Arthashāstra* gives the length of a krosa (later kos) as only 1000 dandas, which means in effect two yojana lengths.[167h]

The famous Indus Valley seeds carry pictographs which in one view are a numerical system, in which decimal, additive and multiplicative combinations are all involved; even a five-figure number can be economically shown with just five symbols.[220] There is some indication that the shunya or zero, and the decimal place value system, may have had their origins in Harappan computations.

South India adopted a numbering system based on eight. With the entry of Brahmi numerals that ushered in the unit of ten, the system was modified.[404] As a relic of that period, even the current Tamil term for nine is en-patthu, or a defective ten, while patthu or ten itself is probably derived from the Sanskrit pankti.[404]

wheat The product that we know today as wheat evolved in several steps in the Fertile Crescent (q.v.) area of the Middle East, where all forms in the evolutionary sequence have been recovered in sites dating from 8000 to 3000 BC.[7b] The wild ancestor, botanically *Triticum boeticum*, had only one grain to each spikelet and was called einkorn; this was cultivated by man to give a diploid wheat, *T. monococcum*. This crossed by chance with an otherwise useless grass that grew alongside, *Aegle squarrosa*, to yield a wild tetraploid, which in turn was picked up for cultivation by man as the tetraploid, *T. dicoccum*. This was a hard wheat (now called durum), which crossed, again by chance, with another wild grass (*T.tauschii*) to give hexaploids. These are the cultivated wheats of today, all of which are *Triticum aestivum*. Within this species are varieties which do not thresh easily, which can be ignored, and three threshable varieties, var. aestivum, var. compactum

and var. sphaerococcum, which today constitute the main wheats of the world.

As long ago as 6000 BC, Mehrgarh, a pre-Indus Valley settlement in Afghanistan, yielded both cultivated diploids and tetraploids, as well as one hexaploid.[245] Some two thousand years later, the other two hexaploids also showed up.[245] In the Indus Valley itself, Harappa has yielded var. compactum and var. sphaerococcum, and Chanhudaro in addition var. aestivum.[32a] These are the elastic rōti wheats of India. The earlier evolutionary durum form has also long been, and still is, raised in India, all along the Konkan coast, under the name kaphli; it is a hard wheat, excellent for making extruded wheat products like sēviyan. These wheats were praised highly by Terry in AD 1618 and Fryer in AD 1675, the latter remarking that it was 'wheat as good as any the world affords'.[20"] Ma Huan noticed the abundance of wheat in Bengal *c.* AD 1400,[20a] and so did Bernier in Kashmir in *c.* AD 1660.[8Aa] Even in the southern kingdom of Vijayanagar, 'fields and places richly cultivated with wheat' are noted by Fernao Nuniz.[8Bh] Domingo Paes[21a] remarks that 'the country has much wheat and that good', but also notes perceptively that it 'is not so common as other grains, since no one eats it except the Moors (Muslims)'.

From Vedic times wheat was always noted as a winter crop, sown in winter and reaped early next summer. Unlike rice, where numerous kinds are recorded down the centuries in Sanskrit literature, wheat is little noted, except for two varieties, nandimukhi and madhulika, mentioned by Sushrutha and pronounced to be an inferior foodgrain.[6f] Through the ages, both hard wheats for extrusion, and bread wheats for making rōtis, continued to be raised. A massive survey carried out in about 1920 showed that 11 tetraploids and 36 hexaploids were then being cultivated in India.[8Ce]

Archaeological evidence shows that barley and wheat were the main staples grown in most Indus Valley cities.[85] There is literary evidence to support this; in the *Rigveda* there is frequent mention of both yava and gōdhuma (the old Persian term is gandum). In the later *Vedas* and *Brāhmanās*, it is barley and rice that get top billing, and in the entire body of *Sūtra* literature, from 800–300 BC, wheat finds no mention at all.[6b] Thereafter it does get mentioned occasionally along with barley in early Buddhist literature, as well as in the *Arthashāstra* and the medical *Samhitās*. In the Hindu perception, wheat was all along anna, a plough-raised food, and in ritual terms an ingredient of kaccha, family foods prepared with water in the kitchen. It was allowed to both Buddhists and Jains, and the Sikh ritual food, kavalprasād, used in baptism, marriage and cremation rites, is a wheat halvā (*see* wheat dishes).

wheat dishes While the Harappans were wheat eaters (*see* wheat), the Aryans initially favoured barley and later rice, so that there are few references to wheat (q.v.) in the entire range of northern Sanskrit literature, starting with the *Rigveda*. Vedic literature[6a] notes only the samyāva made from wheat flour and milk, fried in ghee, and often flavoured with cardamom, pepper and ginger; and ground wheat mixed with jaggery, which constituted abhyūsa.[6a] We have to wait several hundred years for Buddhist canonical literature to mention the mandaka, a large wheat circlet stuffed with sweetened pulse paste,[6c] the present mandē (*see* Karnataka, food of). Even the medical writers, for whom dietary advice is paramount, have only the samitah of wheat to offer, a wheat rōti stuffed with boiled, ground, mung paste,[6f] doubtless the pōli (q.v.) and hōligē of the present.

Thereafter it is the literature of central and southern India that reflects the most imaginative use of wheat. The *Mānasollāsa* of AD 1130[49] refers to the gulālavaniya, which appears to resemble the tiny gōlepāpdi of the present, perhaps made both salty and sweet. In fact most wheat-based items are sweet. The hayapunna appears to be a fried wheat preparation dusted with fine sugar. Kasara was itself a blend of wheat flour, milk, ghee, crystal sugar, cardamom and black pepper, which, stuffed in a wheat envelope, yielded the udumbara. A mixture of wheat flour, guda, black pepper and cardamom was termed murmura. Ghrtapūra or havispura seems to have been the ghevara now common in Gujarat, a pressed mass of fine wheat flour mixed with milk, fried in ghee and coated with sugar. The food item now called khāja was referred to as the khajjaka in the *Mānasollāsa*, made either plain or sweet, and phenaka was the strand-like extruded pheni of today. The vedhami, still called by this name in Gujarat and Maharashtra, was a spiced, sweetened paste of bēsan which was rolled in wheat flour before being baked on an earthen plate. Patrika, like the leaves of a book, were discs of wheat, rolled out and placed one upon the other, deep-fried as a mass and then dusted with sugar, perhaps resembling the chirotti of the present.[49]

The *Shivatattvaratnākara*, written in western India in about AD 1700, describes the suppani as a mixture of wheat and rice grits deep-fried till brown and crisp, and fit for consumption by kings.[51]

Literature in Kannada spans about a millennium, from AD 920,[67a, 67b, 261] (*see* Karnataka, food of) and contains references to a large number of wheat-based items. The rōtis could be roasted, baked, steamed or fried, and included the mucchala-, kivichu-, chucchu-, sāvudu- and uduru-rōtis, and numerous sweet-stuffed mandigēs, purigēs, hurigēs, hōligēs and obattu.

Cream is blended into wheat flour to yield such delicacies as the yeriyappa, pavuda and chilimuri. Wheat ravā and wheat vermicelli are the base for many sweet confections like shālianna, ghrtapūra, pāyasa, laddugē, pheni, chirotti and the crescent-shaped karaji-kāyi (*see* Karnataka, food of).

The wheat rōtis served in the Sultanate[53] period included the khubi (perhaps a phulka), parātas, naan-e-tunuk (light bread) and naan-e-tanūri (tandoori rōti). Stuffed wheat samōsas featured even as part of a meal.[53] In the Mughal period that followed there were several items in which wheat was finely ground with spices, like harīsa, halīm and kaskh, while the samōsa came to be termed qutab. When wheat flour is boiled with water and washed repeatedly, what finally remains is an elastic mass (which is now known to be the protein gluten). This was seasoned in Akbar's kitchen to a product called chikhi.[28] The same elastic residue mixed with fruit juices and cream yielded the drink falooda (q.v.), a favourite with Jahangir.[80A] Wheat washings are also an ingredient in the chewy Sindhi halwā of today.

Wheat-based rōtis of the present can be roasted on a thavā or a tandoor, shallow-fried in a pan, deep-fried in a kadhāi, or baked in an oven (*see* rōtis). Some of these are eaten in all parts of the country, while others remain regional in nature, like the khākras of Gujarat, the bātti of Rajasthan, the bhathūra of Punjab, the lucchi of Bengal, the girda, tschvaru and bākirkhāni of Kashmir, and the khjuru relished by Muslim families. To judge from observations made by visitors in Mughal times, Muslims favoured naan with kheema at a morning meal, while Hindus preferred fried pūri or bhathūra with a sabzi.[53]

whey This must have been familiar as a by-product of shrikhand (q.v.) or paneer (q.v.). It is hardly ever mentioned in literature, but is recorded by I Ching (AD 671–695) as one of the beverages served with a meal at the Buddhist monastery at Nalanda, the others being cold and warm water, buttermilk and fermented rice gruel.[6g]

wine *See* beverages, alcoholic.

winged bean *Psophocarpus tetragonolobus*, the winged bean, is thought to have originated in Mauritius or Madagascar,[7e] but surprisingly is not cultivated in Africa. It reached India in about AD 1800, and is called chapāthi-sēm in Hindi and parandal-avarai in Tamil, being used as both a vegetable and a flour.

winnowing basket and tray The winnowing basket is used in the field after the grain has been threshed. The Vedic sacrifices feature a winnowing basket called palava for holding the sacred grain. The winnowing tray is a domestic item, usually made of plaited bamboo strips; the back edge is raised, and slopes down to the front along either side. As it is flipped up and down

with both hands, the lighter materials move forward and eventually fall off the front edge. The shūrpa is described in the *Shivatattvaratnākara* as shaped like an elephant ear. The Tamil term for the winnowing tray is morram.

woodapple An ancient fruit of India, the kapittha (*Limonia acidissima*) is reputed to be a favourite with elephants, who swallow it whole. The acidic brown pulp, full of tiny hard seeds, was used as one source of the various panaka beverages described by Charaka.[24] Curd acidified with kapittha, with pepper and jeera added, yielded the relish khada.[6f] The *Arthashāstra* describes an āsava or medicated beverage which was an infusion of kapittha with phānita (molasses) and honey, which could be strong or light depending on the quantity of the ingredients used.[74] The *Arthashāstra* also lists kapittha seeds among those crushed for oil, a somewhat unusual and now forgotten source.[16] Xuan Zang notes the kapittha as a fruit of India,[8Aj] and in old Tamil literature it is classed as one of the principal fruits of the pālai desert areas.[61] The woodapple is currently used in the preparation of sour ground chutneys and beverages.

words for food, in English Several food-related words have passed into the English language from Indian tongues, sometimes by way of the Greek, Portuguese and Arabic languages. Some of these are listed below, with the English term listed first, followed by the word or words from which it was derived, with a language affiliation in brackets after each. The abbreviations used are S for Sanskrit, T for Tamil, M for Malayalam, H for Hindi, A for Arabic as used in India, G for Greek and P for Portuguese-Indian:

areca (nut), adakka (M)
arrack, arāk (A)
bazaar, bazaar (H)
betel (leaf), vettilē (M)
brinjal, bringella (P), baingan (H)
camphor, karpūra (S, H)
catamaran, kattai-maram (T)
chatty, chatti (T)
chutney, chatani (S, H)
cheroot, shuruttu (M)
cinnamon, kārphea (G), karuva (T)
conjee, kānji (T), kānjika (S)
copra, khoppara (M), khopra (T)
curry, kari (T)
cutch, kattha (H), kvāth (S)
dumpoke, dumpukht (H)
gingelly, jhuljhulan (R)
ginger, injivera (M)
gram, grão (P)
hopper, āppam (T)
jack, chekka (M)
jaggery, chakkara (M)
jamoon, jamoon (H)
jungle, jangal (H)
kedgeree, khichdi (H)
mango, mangga (T)
margosa, amargosa (P, meaning bitter)
moley (moilē), Malay (as used in India)
mulligatawny, milagu-thannīr (T)
musk, mushka (S, via Greek and Latin)

oil, elaion and oleum (G), ellu (old T)
orange, nārangi (H)
paddy, pari (Malaysia, Java)
palmyra, palmeira (P in India)
pepper, peperi (G), pippali (S)
pilau, pullāo (S, T), pilāv (A)
plantain, planta (P)
pomfret, pampano (P), pamphlet (P)
punch, panch (H)
rice, oryza (G), arisi (T), varisi (S)
rolong (semolina), rolão (P)
sandal, chandan (H)
sugar, sarkara (S)
tamarind, thamar- (or tamar)-i-Hindi (A)
teak, tekka (M)
toddy, tāri (H)
vindāloo, brindão (P in India)

Entries under some of these words may also be consulted.

X

Xuan Zang, and other Chinese pilgrims The indefatigable Chinese pilgrim Xuan Zang left China in AD 628,[8Aj] and after passing through Turfan, Samarkand and Bamiyan, visited Kashmir and Kulu, and various Buddhist pilgrimage centres like Kapilavastu, Pataliputra, Bodhgaya, Nashik and Mathura. He resided at the great Buddhist monastery at Nalanda in Bihar on different occasions, in all for about two years. He returned to China again by an overland route, reaching there in AD 645. By his own admission he had visited '110 of the 138 kingdoms' in every part of India.[100a] This must count as one of the great travel feats of all time, since movement was by no means easy and the resources of a Buddhist monk were extremely meagre. The magnificent account of his journey, *Si-yu-ki*,[319] has frequently been referred to in this dictionary. He was in close contact with Emperor Harshavardhana, whom he accompanied in *c.* AD 642 to Prayaga (Allahabad) to witness the great Arena of Charitable Offerings, where the emperor gave away everything he had, down to his own clothes.[103b]

Fa Xian was in India for fifteen years, from AD 399 to AD 414. He travelled overland into the country and returned by sea from Tamralipti (Bengal) to Sri Lanka, and thence to Java and China.[103d] He noted the high prevalence of vegetarianism, and the hospitality of the people of India.

I Ching was in India for a prolonged period, from AD 671 to AD 695, not long after Xuan Zang. He wrote about the meals served in the Buddhist monasteries, and the scrupulous hygiene observed by the monks.[114,152]

Y

yams The English word yam stems from the Mandē word niam, common to the west coast of Africa.

It was brought to Spain by Moorish slaves who referred to *Colocasia* yams by this term. It was later applied by the Spaniards and Portuguese to the *Dioscorea* yam, and was first used by the English in such forms as iniame and yamma, before they settled on yam.[405]

The genus *Dioscorea* has about 600 species, of which only 10 are edible.[405] It is an exceedingly ancient plant, and the Asian and African ancestral groups may have separated as far back as 26 million years ago. New World yams have a different basic chromosome number (x = 9) from Old World yams (x = 10), which also have a high degree of polyploidy (2n = 4x = 40 to 100).

In India, *D. alata* is the greater yam, which comes in numerous variations of shape (globose, lobed, fingered, U-shaped) and colour (white, magenta, red, purple), and is called khāme-ālu, chupri-ālu and perumvalli-kizhangu. It may have originated in the Burma-Thailand area.[405,406] The lesser yam, kangar or valli-kizhangu, which appears in sausage-like bunches, is *D. esculenta*, which also originated in the same area as the greater yam, with major centres of diversity for both species in Papua New Guinea.[7e] The veunti of Kerala, *D.hamiltonii*, is a hilly form with a delicious flavour, which shares a common ancestry with the greater yam, *D. alata*.[405] The Sanskrit rat-ālu, and Hindi pīta-ālu, is an edible but bitter form which has been used as a famine food, and is *D.bulbifera*. The vajrakanda mentioned in the *Arthashāstra*, a poisonous tuber once used even to kill tigers, appears to be *D.daemona*. Āluka in Sanskrit and ālu in Hindi are generic terms for underground tubers of all kinds, as are the Tamil words kizhangu and kandam.

yavana *See* Greeks, contacts with India; Rome, contacts with.

Z

zakāt A cardinal Islamic concept, that one has a duty to share food with others less fortunate, leading to such practices as eating at a common table and sharing the same plate. Zakāt is particularly enjoined at Id-ul-fitr, which marks the end of the Ramzan fast.

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K.T. Achaya, the authority on Indian food, has pursued scientific research in the areas of oilseeds, vegetable oils, processed foods and nutrition. His other books include the immensely successful *Indian Food: A Historical Companion* (OUP, 1994) and *The Food Industries of British India* (OUP, 1994).

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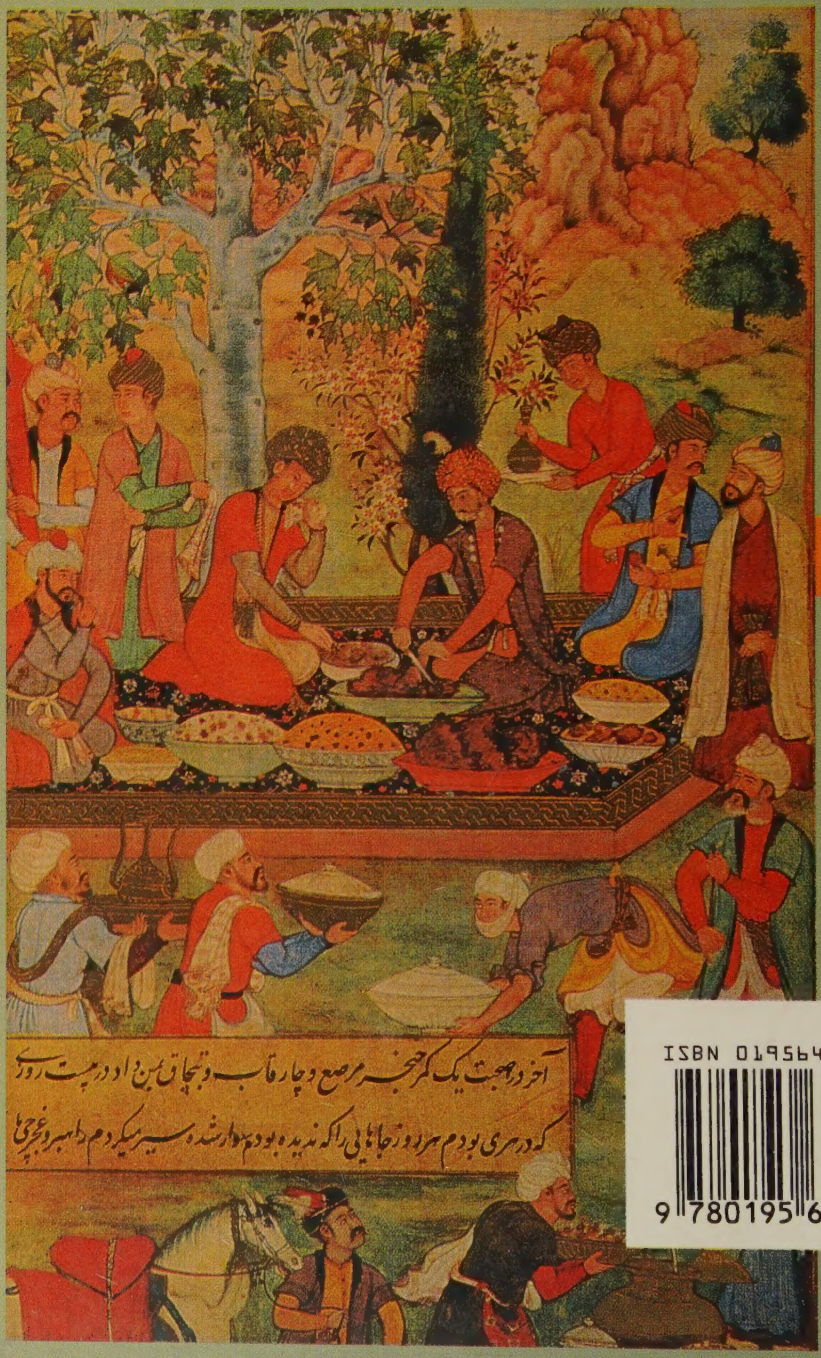

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